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ORIGINAL ARTICLES.

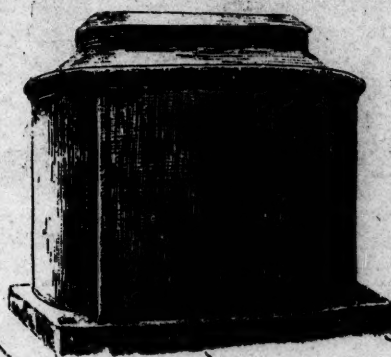
THE NEED OF PUBLIC TOILETS IN AMERICAN CITIES.*

BY EDWARD H. WILLIAMS, M.D.,
OF NEW YORK.

WHILE it is undoubtedly true, as a general proposition, that American cities have little to learn from European in the way of sanitary improvements, in one respect at least most of them are behind their English and continental sisters. This defect is in the matter of public toilets and lavatories. The absence of such necessary sanitary accommodations is often extremely embarrassing to strangers, particularly those coming from abroad and unaccustomed to our language and customs. New York, being not only the largest city but also the largest receiving port of the country, should have set the example for America and have remedied this defect long ago, just as such cities as London, Paris and Berlin, have done, but at the present time it is no better in this respect than any other American city.

To the old resident of the metropolis, acquainted with city places and city ways, this defect may seem like a very trivial one; but to a very large proportion of the forty or fifty thousand transients, foreigners and others, who are poured into New York daily it appears otherwise. To many of them it is a source of great inconvenience, discomfort, and frequently embarrassment and distress. Imagine the predicament of an American, unacquainted with the French language and French customs, should he find on reaching Paris that all the public toilets had been removed! In his wanderings about the city he

yet his position would be practically identical with that of a Frenchman visiting New York, with perhaps this very marked difference—that drinks and cabs are much more expensive here. For at the present time about the only available toilet places in New York are in the restaurants, saloons, and elevated stations, and these cannot be considered, strictly speaking, as free public places. Furthermore, they are not all accessible to women, and in certain localities (the saloons

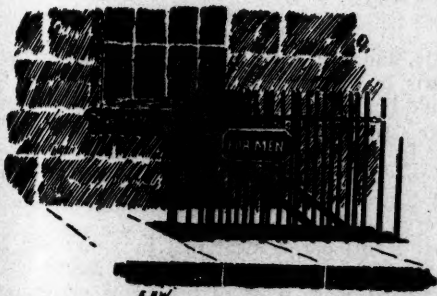


One type of Berlin Urinal.

excepted) are few in number and widely separated.

The argument against public sanitary places of this sort is, of course, that any such structures, conspicuous enough to be useful to strangers, are disfiguring to the city. But in reply it may be pointed out that such cities as Paris, Berlin, and Vienna, have them by hundreds, and are nevertheless considered much more beautiful cities than New York. Furthermore, these structures are not shocking even to the American sense of modesty and propriety, or at least not enough so that American visitors or residents of those cities would vote for their removal if they had the chance. To be sure some of the cruder forms, in the outlying districts and poor localities, are disgracefully public and open, but it may be taken for granted that no such similar structures would ever be tolerated even in the lowest quarter of New York or any other American city.

But, even granting that most of the Paris and Vienna public places are objectionable on account of their unsightliness, it is still possible to overcome such an objection by placing them underground, as has been done in London. As New York is just beginning upon the construction of a vast network of other underground structures it seems a most appropriate time to consider the construction of public lavatories and toilets in

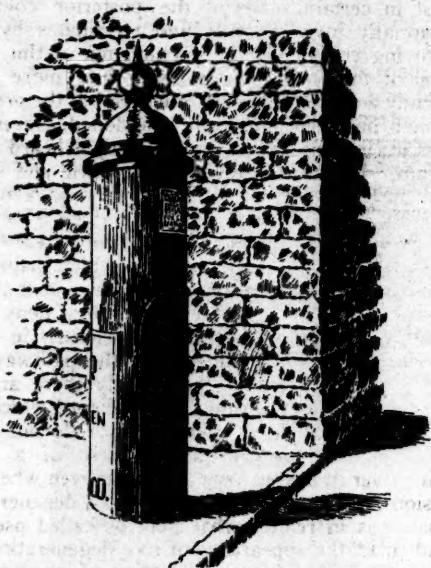


Entrance to London Underground Toilet and Lavatory.

would always have access to the restaurants, of course, if he cared to purchase liquid or other refreshments, and as a last resort, a thirty-cent cab would drive him at any time to his hotel; but on the whole he would miss very acutely the present sanitary structures scattered about the city. And

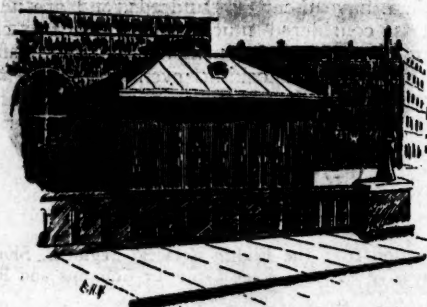
* With illustrations by the writer.

connection with them. Of course there will be toilets and lavatories in the stations of the subway as now planned, but as these will only be available to persons who have paid a fare, they cannot be considered free public places.



An Objectionable Form of Urinal, seen in some of the outlying districts of Paris.

The London underground toilets, although open to improvement, would serve as good models upon which to base similar structures in New York. In London these toilets are placed either directly under the streets or at one side, according to the width and shape of the roadway. The entrances are simply stairways, surrounded by neat iron fences, bearing unobjectionable, but unmistakable signs, "for men" or "for

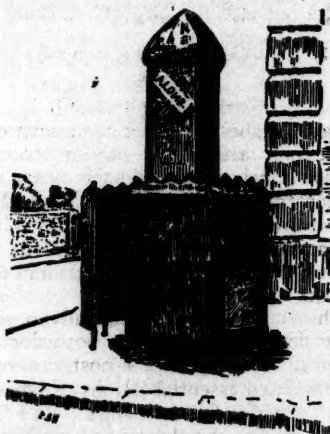


One type of Paris Toilet.

women," respectively. The stairway leads into a tiled passageway, on one side of which are urinals, the opposite side being built into closets. The urinals are free, but the closets are arranged with a penny-in-the-slot device, which makes them reimbursing but still not prohibitive. There are other little enclosures, somewhat similar to

those now in the Grand Central Station, where a person may drop in a penny and have the use of wash bowl, hot and cold water, soap, towel, clothes brush, etc. There is also an attendant in charge whose duty it is to look after the convenience of the public. On the whole these underground structures are clean, sanitary, and, by the penny-in-the-slot devices, practically self supporting—some of them even more than that.

Of course the initial cost of an adequate number of such toilets and lavatories in New York would be very great, but this cost could be materially lessened if they were undertaken at the present time and in conjunction with the present underground structures either building or projected. It would not be necessary, however, to have elaborate and expensive structures excepting in the crowded districts of the city. For the uptown and outlying places simple and inexpensive ones on the street, such as those in similar localities in European cities, would answer equally well, and could be made absolutely unobjectionable. The cost of these would be comparatively



Paris Street Urinal, showing tower used for advertisements.

little, and they could be made reimbursing, as in Paris, by the available advertising space that they could be made to afford. To be sure, such buildings covered with glaring advertisements would not be particularly pleasing to the eye, but after all they could be scarcely less so than the flaming bill-boards, and painted sides of buildings, seen everywhere now.

It seems paradoxical that in a city like New York, where a person may find places for the gratification of most of his wants or desires at almost every turning—hotels, restaurants, saloons, theaters—that he (or she) may be put to the greatest discomfort before he can respond to one of nature's urgent demands. And yet such is the case to-day, more particularly in the case of women, to whom the saloon is not accessible.

It is contended by many people that one of the chief reasons for New York, and other cities, not having free toilets is because the saloons do not

wish them—that saloon-keepers finding it more profitable for their business not to have them. If this is true it is a strong argument in favor of such structures, and one that temperance societies might do well to consider seriously.

In Paris, one time, a thirsty Englishman, recognizing the crying need of public drinking places in the city, immortalized his name by establishing numerous drinking fountains. Perhaps if this same Englishman had visited America he would have extended his charity to his western cousins and presented New York with public toilets. It is certain that he would have found the "crying need" of them.

41 East Twenty-ninth Street.

THE MORBID ANATOMY AND PATHOLOGY OF TABES.*

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PART III: ANALYSIS OF 140 CASES OF LOCOMOTOR ATAXIA.

(Continued from Page 1126.)

In cases of tabes with bulbar involvement extensive lesions are found in the oblongata, v. Rensz has recently described such a case in which in addition to the ordinary lesions of the spinal cord there were found: degeneration of both glossopharyngeal ascending roots, the nucleus ambiguus, the hypoglossal nucleus and root, and of the roots of both vagi.

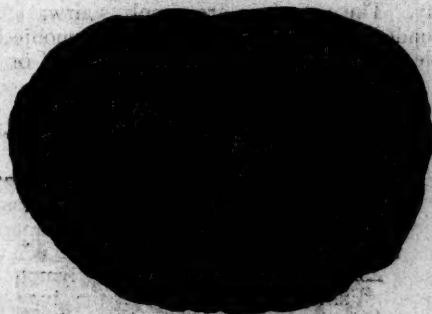
The theories that have been advanced to explain the degeneration of the posterior columns of the spinal cord and of the posterior roots, i.e., the principal and essential lesions of tabes may be enumerated under five headings: (1) The vascular theory; (2) the theory of primitive degeneration of the posterior columns, sometimes called the medullary theory; (3) the theory that the essential lesion is (a) primary, (b) secondary degeneration of the posterior roots; (4) the theory that primary lesion is of the cells of the ganglia of the posterior roots, and (5) the neuritic theory; the theory that the peripheral nerves are first attacked and that the lesions that finally overtake the posterior roots and columns in a secondary manner (Leyden, Goldscheider, De Massary). These theories have been found one after the other to be insufficient to explain the lesions of tabes and have all, save the third, more or less been abandoned.

The vascular theory, i.e., the theory which postulated the lesions of the posterior columns to be secondary to disease of the blood-vessels, has long since been given over although at one time it was looked upon with considerable favor. In some cases changes in the blood-vessels of considerable severity and extent are found but in the vast ma-

jority of cases they are too inconstant and too trifling to be looked upon as the lesion.

The second of the above enumerated theories which is based upon the occurrence of a primitive sclerosis of the spinal cord, which developing first in certain zones of the posterior columns gradually invades other and terminates by destroying completely the parenchyma of this portion of the cord, was at one time more uniformly accepted than any other. But at the present time it has been practically abandoned. Nevertheless, in a modified form it is likely to be heard from again. Indeed, the theory that Marie and Guillain have recently promulgated (*Revue Neurologique*, Jan. 31, 1903) brings it at once to the front. These authors claim that they have never been able to accept the teaching which maintains that the primitive lesion of tabes is a root lesion and exclusively a root lesion. They deny that the topography of the zones of sclerosis in early tabes coincides constantly with the pathways of the posterior roots. Undoubtedly there are always root lesions within the spinal cord which are not systematized, or at least which do not coincide with the intramedullary course of a root. Moreover, it is seen very often that even when the lesion has the appearance of a root degeneration that it is in reality what may be called pseudo-radicular, the appearance of root degeneration being given to it by the alteration of the myelin fibers adjacent to certain interstitial tracts. That in the first stages, the lesions that are apparent with the method of Weigert begin in certain regions and take special certain systems of fibers, they do not deny, but they claim that there is often a pseudo-systematization due to the disposition of the lymphatic channels and the intramedullary

Fig. 8.



Section from the Eighth Cervical Segment, Showing Extensive Lesions of the Posterior Columns and Roots.

septa of the pia. Furthermore they point out that from a histological point of view the lesions of tabes do not present themselves locally as Wallerian degenerations, this is now universally admitted. There is undoubtedly a process of Wallerian degeneration in the upper lesions of the spinal cord consecutive to intramedullary lesions of the different fibers of the posterior columns in the lower dorsal region, but there is no true Wallerian degeneration in the real tabetic process.

* Part I of this series appeared in the *MEDICAL NEWS* of January 2, Part II on March 7 and 14.

Marie and Guillain further contend that in cases examined according to the method of Marchi one sees that the granular bodies existing in the posterior columns, do not present any localization which recalls root systematization, but they are on the contrary diffused through the entire extent of the posterior columns. One sees, moreover, in these sections, that the intramedullary lymphatic spaces are dilated and that the blackish granules are deposited in the cells of the ependyma itself in certain regions where the canal of the ependyma is permeable. When the process is particularly intense it is possible to force the limits of the posterior lymphatic system, and in this case the portion of the lateral columns bordering on the apex of the posterior horn, may show also the granular bodies indicating a similar alteration.

These writers have been led to promulgate a new theory which they believe will be of great service in assisting us to a comprehension of the pathogenesis of tabes. Their contention is that the initial lesion of tabes is nothing else than a syphilitic lesion of the posterior lymphatic system of the spinal cord. They maintain that there exists in the spinal cord, a posterior lymphatic system constituted by the posterior columns, the posterior roots, and the juxtaposed pia which is particularly active and relatively independent.

The lesion of tabes, they maintain, is alone a degeneration secondary to and dependent upon a lesion of the roots at their point of entrance through the meninges, it is a lesion of the entire lymphatic system of the spinal cord. From the point of view of general anatomy, this lymphatic system is autonomous.

Nageotte has already pointed out that the systematization of tabes depended upon the disposition of the lymphatic apparatus which allows the morbid agency to be operative on a certain definite part of the posterior roots, and upon a locus minoris resistentiae found in the posterior roots.

Marie and Guillain say that anatomists admit that there exists in the pia a lymphatic system. Between its external and internal layers is a central lymphatic space. Anatomists have seen lymphatic vessels in this membrane. The cellular elements that one finds in the cerebrospinal fluids of tabetics are lymph elements. Pathology teaches that the lymphatic system of the posterior meninges is a system which has no communication or very little communication with the anterolateral lymphatic system. Therefore the pathology of the posterior meninges is a special pathology. They recall that it is in the posterior meninges especially that one sees calcareous plaques and that it is here that one sees blood in lymphatic stasis consecutive to cerebral hemorrhages. Tabes is a lymphangitis of the posterior lymphatic system of the spinal cord, if the word lymphangitis does not call up the remembrance of large vessels and inflamed canaliculi. Lymphangitis as they use it does not mean

a traumatic lymphangitis, but a radicular lymphangitis, a histological lymphangitis.

The alteration of the pia, i.e., the meningitis which is so commonly found in the posterior surface of the dorsolumbar cord in tabes, is of the greatest importance according to these writers in the interpretation of the lesion of tabes, because it is this meningeal alteration that leads to disturbance of the meningo-medullary lymphatic circulation.

Marie does not deny the importance of lesion of the posterior roots in the production of the alterations of the posterior columns but he thinks there is something more than degeneration of the roots. The disease of the posterior roots is itself secondary to affection of the posterior lymphatic system of the cord.

The theory that the characteristic lesion of tabes is a degeneration of the posterior roots has steadily gained ground during the past twenty-five years and it is to-day with one modification or another generally accepted. As was stated previously, Marie and Guillain now maintain that this theory is not entirely in accord with the facts. Until this time, however, Marie's published opinion has been that the degeneration of the posterior roots was secondary not only to alteration of the cells of the spinal ganglia but to alteration of the peripheral ganglia whose existence was posited on theoretical grounds. The part of this theory that has been much discussed and which is still far from being settled is whether the lesion of the posterior roots is primary or whether it is secondary to disease of the cells of the spinal ganglia, of whose axones the posterior roots are constituted, or to compression of the posterior roots principally by lesion of the pia. Numerous writers, (Stroebe, Oppenheim, Marie, Babes) have testified to the existence of changes in the cells of the spinal ganglia in cases of tabes, but despite this it seems to be the unanimous opinion of everyone entitled to one, that the lesions of the ganglia are too trifling and inconstant to account for the lesions of tabes. Moreover it has been proven again and again that the cells of the spinal ganglia are often normal in tabes. Furthermore, if disease of the cells of the spinal ganglia was a constant element in tabes the peripheral sensory nerves should be the seat of constant and profound change which they are not, although they are often found diseased. Dejerine has pointed out that if the atrophy of the posterior roots was dependent upon a lesion of the ganglion, the atrophy should extend as far as the peripheral end of this root which passing out from the ganglion reunites with the anterior roots to form the spinal nerves; but this peripheral end is intact in tabes. Babin-ski has maintained that even though there be no structural alterations in the cells of the ganglion there may be a functional or dynamic change to which the degeneration of the posterior roots is secondary. The theory that the lesions of the posterior roots is secondary to disease of the pia and arachnoid which compresses and strangles them is to-day held to be the most probable theory

by such reliable investigators as Obersteiner and Redlich, and Nageotte.

The point of penetration of the posterior root-bundle becomes so to say a locus minoris resistentiae which from relatively slight changes may be the starting point of profound lesion. If the penetrating posterior roots experience a certain compression a slight degree of meningitis with consequent connective tissue contraction will be sufficient to increase this pressure of the meninges and cause extensive intramedullary root degeneration. The idea that posterior meningitis causes the lesions of tabes by pressure contact upon the columns of the cord as was originally taught by Rindfleisch has been abandoned.

Everyone who has had anatomical experience with nervous diseases knows that syphilitic meningitis, as the disease is ordinarily understood, does not cause the lesions characteristic of tabes. It causes pathological changes in the blood-vessels, meninges and substance of the cord that is unmistakable, which may cause a complex of symptoms to which the name pseudotabes is given. (See article on Syphilitic Pseudotabes, *N. Y. Medical Journal*, April 4, 1903.)

Concerning the existence of implication of the pia in the majority of the cases of tabes there can be no doubt. Although it is most evident in the pia of the posterior surface of the cord it is not always narrowly confined to these limits. Disease of the pia in tabes is variable in intensity and constancy. When it occurs the characteristic feature of the meningeal lesion is connective tissue hyperplasia. It may or may not show the cellular infiltration and vascular changes that are supposed to be *sine qua non* of an inflammatory process. The newly formed connective tissue is often unevenly developed and existing around the posterior roots at the point of their entrance into the cord undergoes contraction as connective tissue always does and strangles them. Redlich and Obersteiner found from a study of longitudinal sections of tabetic cords with such meningitis, that every spot where the posterior roots penetrate the pia, distinct strangulation of the roots was to be seen. The thickened pia did not seem to penetrate or invade the roots but merely to strangle them. Nageotte contends that the lesions described by Obersteiner and Redlich are not found in tabetic cords that are hardened in the vertebral canal. Although the theory of Redlich and Obersteiner fits in well with the theory of the syphilitic origin of tabes, it has not received wide acceptance. The fact that such involvement of the meninges as that they describe is by no means constant in tabes, is a serious objection to it. Another is that it does not explain the degeneration of the part of the posterior roots between the ganglia and the pia. Moreover it leaves unexplained the disease of the optic and other cranial nerves, which occurs in such a considerable number of cases and which seem to be in nature the same kind of degeneration as that of the intramedullary posterior roots. The symmetry of the lesions in tabes, the great infrequency of unilateral tabes,

the rarity of tabes-like lesions with frank meningitis, the clinical course of tabes all speak against the views of these authors.

It is well known to neurologists that Nageotte, a trustworthy French neuropathologist has contended unswervingly for acceptance of the view that the degeneration of the posterior columns and posterior roots is secondary to syphilitic disease of the meninges. His views differ materially from those of the writers just mentioned and especially concerning the point of departure of the morbid process. He has recently summarized his conclusions regarding the pathogenesis of tabes in the following words: "Tabes is characterized anatomically by an inflammatory lesion which attacks any number of sensory and motor roots at the point of their emergence from the subarachnoid space, which lesion is a general syphilosis of the meninges." He maintains that the beginning of the destructive process in tabes is immediately beneath the ganglia, that is at the other extremity of the extramedullary fiber from Obersteiner and Redlich. In every case that he has studied he has found a transverse lesion, consisting of perineuritis and mesoneuritis limited exactly to the space comprised between the ganglion and the entrance of the roots into the arachnoid sac. The lesion begins by an embryonic infiltration and develops into a sclerosis. The nerve roots atrophy secondarily either from irritation or from compression. The embryonic proliferation of the perineuritis forms a ring around the roots, which ring undergoes different modification but principally a peripheral sclerosis. The embryonic proliferation disassociates into secondary fasciculi, the elementary fascicles of the roots, and makes a place as it were for the fibrosis. The walls of the veins are studded with numerous embryonic nodules which causes a resemblance to the lesions of meningeal syphilis. The anterior roots are not always spared, they sometimes have lesions of similar intensity and character. De Massary who has a theory of his own, which will be considered later, found that similar conditions exist in the roots of patients dying from infectious diseases and he concludes therefore that the lesions described by Nageotte thus lose their specificity. Nageotte insists on the other hand, upon the fact that in transverse neuritis which develops around the root fibers the alteration of the nerves are distinguished by many factors; not only are the fibers compressed, but they are modified in their nutrition, the embryonic infiltration constituting an obstacle to the vascular and lymphatic circulation is conducive to the activity of toxic substances. The theory has been equally held to explain optic atrophy, it being maintained that this is due to a strangulation manifest on the optic nerve in its passage through the optic foramen following periostitis and syphilitic pachymeningitis which develops at this level, but this hypothesis is contradicted by facts.

Obersteiner has looked for the lesions of transverse root neuritis described by Nageotte in three cases of tabes. He has found them only in one, an

old case. In a series of cases Redlich has observed the two kinds of lesion described by Nageotte, i.e., the embryonic infiltration and the fibrous alterations. The embryonic infiltrations were not always equally distributed at the periphery but occasionally they displayed themselves in foci. It was not only the embryonic elements that proliferated, however, but the endothelial cells and the arachnoid. In three cases, and particularly in recent cases of tabes, the same author was unable to find these lesions, or they were scarcely evident, but in others in which the tabes was more advanced, the lesions were relatively less intense there being no parallelism between transverse neuritis and the degeneration of the posterior columns. Redlich, in discussing Nageotte's claim concludes that the lesion discovered by Nageotte does not explain the degeneration of the posterior columns of tabes. At the most it might have been merely an action of reinforcement on the root degeneration, but it no more explains the atrophy of the root than the spinal meningitis explains the sclerosis of the posterior columns. There is no parallelism between the transverse neuritis of Nageotte and degeneration of the posterior columns.

From all this it would seem that the interstitial lesion is by itself insufficient to cause destruction of the nerve fibers, and for Nageotte himself there is an important element which intervenes in this process, i.e., action of the specific infection upon the nerve fiber. To his way of thinking this action is favored by the progression of the vascular lesions and the sclerosis depending upon the circulation. This action is in the beginning irritative, due to the toxic products of the specific agent acting upon the intramedullary pathway of the posterior root which atrophies before the extramedullary. It is astonishing, however, that an irritative lesion able to produce a Wallerian degeneration of the intramedullary pathway of the roots so intense that Nageotte was able to find it in a case of tabes of very rapid course, should leave unaffected for such a long time, the extramedullary pathway. This idea of an inflammatory lesion, acute or subacute, harmonizes badly with the slow atrophy, progressive and chronic, of the roots which characterizes the tabetic process. Moreover, it is inconstant and seems therefore necessary to conclude that if the interstitial lesion described attracts attention to a region "which appears to have special pathological aptitudes that explains its situation and its associations" it has not been absolutely demonstrated that it is the primitive lesion of tabes or that it plays the rôle of a second order in the pathogenesis of this condition.

Thomas and Hauser have recently discussed the entire subject of lesion of the ganglia and roots in tabes and as a result of their study of 11 cases of tabes they are led to formulate the following conclusions.

The fundamental lesion of tabes is a neuritis which presents some histological characters comparable to those that occur with toxic, experi-

mental or pathological neuritis, such as lead neuritis, but which presents as a distinctive mark, its selection of the posterior roots, its slow and progressive progress and its slight tendency to recover. This neuritis makes the impression of a dystrophic trouble rather than an inflammatory alteration.

In order to explain the remarkable predilection of the degenerative process for the posterior roots, it may be necessary to posit various factors such as meningitis at the level of the entering posterior roots, the transverse neuritis of Nageotte, or even sometimes the strangulation described by Obersteiner. These lesions may be mechanical in their action, or what is much more likely, they may be conditioned by the vascular alterations which accompany them, or finally by their specificity. Further one may invoke a functional or dynamic alteration in the ganglion cell in which the trophic power is exercised less actively at the central end of the posterior root than at the peripheral end. Finally it is still possible that it may be through infection of the subarachnoid cavity, as the researches of Nageotte and Babinski have suggested, the cerebrospinal fluid of tabetics acquires toxic properties. This should be considered as a cause of the atrophy of the posterior roots and of inflammation of the region of Nageotte which is in direct connection with the great subarachnoid cavity.

Tabes thus appears to them an affection much more complex than is ordinarily admitted. It is because of the multiplicity of lesions and the difficulty which their interpretation offers that Thomas and Hauser prefer an eclectic theory of its causation rather than the various general formulations which have been offered. They say in summary therefore, that the essential lesion of tabes is a dystrophy which involves the entire peripheral sensory neuron, the lesion being predominantly, however, of the central prolongation of the cell and which affects generally also certain portions of the motor protoneuron, and the sympathetic system.

The histological alterations are characterized by modifications in the nerve fibers comparable in certain conditions to those which occur in toxic, experimental or pathological degenerations.

If the cell body of the sensory protoneuron appears in general to preserve its normal structure and aspect, it is nevertheless often the seat of trophic lesions, and moreover, when these lesions are lacking it is legitimate to suppose that its trophic function is in a certain measure compromised.

A hypothesis which was formulated to explain the lesions of tabes by postulating primary lesion of the cells of the posterior spinal ganglia was at one time much more widely accepted than it is today, although it never had many followers. On theoretical grounds it seemed and still seems very plausible. The cell body is universally admitted to be the trophic center for the prolongations of a cell and the nerve cells of the spinal ganglion constitute the centers of the sensory neuron. The

principal fiber or neuraxon of each of these cells goes into the posterior roots and so into the cord, the dendrites of the cell go to the periphery. The tabetic degeneration of the intramedullary fibers of the posterior columns is therefore a degeneration of the neuraxons of the spinal ganglion cells.

When neuropathologists first began investigations upon the state of the cells of the ganglia from cases of tabes, there seemed to be an inclination to accept the view that the alterations of the cells that were found were sufficient to account for the disease of the posterior roots and columns. Stroebe, who did considerable work in this direction, seemed to be of this mind. Later investigators such as Juliusberger and Meyer, Schaffer, and Marinesco working with the Nissl method of staining, have shown that the alterations of the cells of the spinal ganglia are inconstant and inconsiderable. The first-named of these authors recognizing this inconstancy of pathological change in ganglia claims that although the spinal ganglia present a normal anatomical appearance, this does not compel us to seek the origin of the disease elsewhere. In order to make the spinal ganglion of normal appearance, the point of origin of the tabetic degeneration, they fall back on the changes in the peripheral nerves. Their idea seems to be that the alteration of the chromatic substance in the cell is a positive anatomical reaction of the cell to morbid influence which acts upon the nerve cell and that it is an indication that the cell cannot undergo restitution. Their idea of the function of the spinal ganglion cells is that it changes or causes a metamorphosis of irritations or other stimuli coming from the periphery and going to the posterior columns. If these irritations are of abnormal influence an abnormal metamorphosis takes place and operates injuriously upon the posterior columns. The spinal ganglion cells have time enough to take care of themselves, as it were, to ward off any injurious influence, and therefore they do not find them diseased after these conditions have existed. This must strike every one, as it does the writer, as rather finely spun, especially in view of the fact that the peripheral changes in tabes are extremely slight in contrast with the central alterations. It is utterly impossible for me to conceive that trivial changes of the peripheral nerves cause the majestic lesions of the posterior columns.

All in all, the unsurmountable objection to the "ganglionic theory," as this theory has been called, is that the pathological alterations of the spinal ganglia are not found constantly in tabes and when they are found they are not of such a degree or nature that makes it legitimate to suppose that they stand in relationship to the degeneration of the posterior columns other than secondary or incident to it. An attempt has been made to circumvent this objection.

Babinski has suggested that the ganglionic theory of tabes need not necessarily be thrown over because the lesion of the constituents of the spinal ganglia are not found constantly. He asks whether it is not legitimate to invoke the exist-

ence of dynamic or functional troubles of the cells of the ganglia, not demonstrable by our methods of investigation, the effects of which are first manifest upon the terminals of the prolongations of the cells in the shape of detectable degeneration. This hypothesis presupposes that the first manifestations of pathological alteration in the cell occurs in the right branches of its ramifications which in itself is an unjustifiable presumption. But the unsurmountable objection to this is that the changes in the protoplasmic prolongations (going to the cutaneous periphery) are not found with the constancy and intensity that they should be even though the disorder of the ganglion cells was only dynamic. Thomas and Hauser have been able to demonstrate in cases in which lesion of the parenchymatous constituents of the posterior ganglia, varying from slight atrophy to complete disappearance, were to be made out that the peripheral prolongations of the ganglia preserved their integrity. Moreover, nothing has yet been brought forward to suggest that a dynamic perturbation goes on in the spinal ganglia.

One of the greatest objections to this hypothesis is that it does not explain the difference between the central and the peripheral prolongations of the spinal nerve cells. Those prolongations that go into the posterior roots are found degenerated in tabes even up to the ganglion cells, but on the other hand the peripheral pole of the ganglion, i.e., the place from which the fibers go into the peripheral nerves, show scarcely any evidence of disease whatsoever. This finding necessitates a new hypothesis that will explain why the prolongations of a cell behave so differently when exposed to the same conditions, and this would be difficult to formulate because it is contrary to the law of degeneration which holds that after lesion of the cell the prolongations of that cell perish uniformly and without favoritism. Finally it is very difficult to reconcile it with the fact that degeneration within the posterior root confines itself closely to the cell and yet the disease of the cell should be only functional without causing changes that are detectable. It is furthermore contrary to the fact that the degeneration of the extra medullary roots is not infrequently found to be much less than that within the spinal cord. To explain this Marie has put forth the hypothesis that the medullary sheaths are dependent for their nourishment upon the axis cylinders, but that the latter is not a solid mass, but made up of fine primitive fibrilla closely pressed together, suspended probably in a fluid medium. If only a few primitive fibrillae decay, the medullary sheaths may be preserved; if the majority of the fibrillae or all of them degenerate the medullary sheaths must degenerate as well. We may presuppose then that the fibers entering into the posterior columns divide in an ascending and descending branch. Both of these branches will, therefore, have less fibrillae than the trunk from which they came. In these branches, when degeneration of the fibrillae takes place, destruction of the medul-

lary sheaths will occur sooner than when the stem fibers are diseased while the number of fibrillæ is smaller than in the stem. This he considers to be in accord with the fact that the collaterals degenerate before the root-fibers. The only writers that need be considered who still adhere to the neuritic theory are Leyden and Goldscheider. De Massary seems inclined to the same view. They offer no proof that the starting point of the lesion is in the peripheral nerves save that these nerves are often found degenerated in tabes and that the theory fits well with the theory that cold and injury are exciting causes of tabes, which I in common with others consider to be practically of no importance (*vide* article on etiology). Against this opinion of Leyden and Goldscheider two facts speak very strongly. The first is that the peripheral degenerative changes have no relationship whatsoever in their intensity and extent to the intraspinal changes, and, second, that the histological connection between the peripheral nerves and the posterior roots, viz., the posterior ganglion is not necessarily diseased in tabes, and, indeed, is often found not diseased in tabes.

In conclusion it may be said that the evidence at hand tends to show that the essential lesion of tabes is an elective progressive degeneration, segmentary in type (in contradistinction to Wallerian), of the posterior columns of the spinal cord. The distribution of the degeneration therein corresponds with the intraspinal distribution of the posterior root-fibers. After the degenerative process in the cord has existed for an indefinite time, probably a protracted period in every case the endogenous fibers of the posterior columns are involved. This inclusion of the endogenous fibers changes the outline of the anatomical picture and the confines of the pathological process. In the majority of cases of tabes of any considerable duration that have been studied after death pathological alterations have been found in other portions of the nervous system, especially in the peripheral and cranial nerves and their ganglia and also in the brain and sympathetic nervous system.

Although none of the hypotheses that have been formulated to explain the pathogenesis and the point of origin of lesion are adequate, satisfactory or susceptible of demonstration that recently suggested by Marie and Guillain would seem to be more in accord with what we know of the etiology of tabes than any of the others. Adopting their theory it is probably that the lesions of tabes are the results of the activity of a poison generated by syphilis acting primarily upon the intramedullary distribution of the posterior roots. The changes in other parts of the nervous system may be incidental to the existence of this poison within the system or they may be secondary to the disorder of nutrition superinduced in the entire peripheral sensory neuron by disease of such an important portion of it as that which is affected in tabes.

This idea of the pathogenesis of tabes may be reconciled with a theory of origin put forth by Edinger some years ago, which is commonly

known as the "compensation" theory or repair theory of tabes. In every exertion there is destructive metamorphosis in nerve cell and nerve fiber, which in health is compensated by repair. If the nutrition is defective from any cause such as from toxic product, syphilis, parasyphilis, etc., from injury, from exhaustion or from hereditary weakness, repair will be insufficient and degeneration may be the result. Some cord tracts seem more easily acted upon than others, especially the posterior columns, the pyramidal tracts and the direct cerebellar tracts. In other words, less strain can be put upon these tracts than upon many of the others. Tabes, a disease in which the posterior columns are degenerated, may be initiated to disease by lack of compensation or repair in this part of the nervous system, on being subject to injurious influences.

Soury in a recent review of the pathogenesis of tabes says, "Tabes appears to be a general degeneration of the nervous system: peripheral nerves, spinal cord, brain, which may be successively or simultaneously affected, varying with the pathogenic cause and the congenital or acquired resistance of the different provinces of the neuraxons." This does not seem to me at all what tabes is. Because changes of variable and slight degree are found in different parts of the nervous system this is no reason for concluding that such findings are part of the disease and that they are incidental.

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The Photography of the Eye-grounds of Animals.

—A large number of photographs of the retina of various animals was obtained by W. NIKOLAEV (Pflüger's *Archiv f. Physiol.*, Vol. 93, Nos. 11 and 12). The photographs were obtained from real inverted images of the retina, and present the latter therefore in the erect image. This method is of practical value in the laboratory. The author was the first to obtain photographs of the mammalian retina which show the changes in the retinal vessels under the influence of amyl nitrite, strychnine, chloroform, ergotin and other drugs, and the first to notice changes in the color of the eye-ground under the influence of amyl nitrite and chloroform.

THE PROPER RECOGNITION OF ELECTROTHERAPEUTICS.*

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THE most wonderful discoveries and applications that marked the closing era of the last century, were the work and results of modern electricians. Indeed, the most marvelous achievement within the last decade, is that of the discovery of Professor Roentgen.

Where electricity was formerly used empirically, we are now able to study its actions as based upon certain well-known laws and principles, so that the fields of electrochemistry, electromechanics, and electrotherapy, can be delved into with a proper knowledge and distinguishing rule of guidance.

Electricity has even shown its wonderful action and quasi-natural force in restoring to life and hastening the growth of the surroundings of the agriculturalist and botanist. On the other hand, it is the complete destroyer of most all forms of life, by an instantaneous or slow death. It is able by cataphoresis and electrolysis, to destroy certain structures abnormal in growth and location, without impairing the functions of the adjacent tissues. With the X-ray we can undermine and destroy certain malignant growths that may be superficial or even deep-seated, while our field of diagnosis has been greatly enlarged through this new electrical penetration.

Electricity, the great potential of vibratory force, the wonderful synergist to the metallurgist, jumping from the anode to the cathode, and from the negative to the positive, is the essential force in combating certain diseases which are specially adapted to the treatment at the hands of the electrotherapist.

With all the data and facts bearing upon electrotherapy and electrical diagnosis, there are still a large number of "medical pessimists" who insist upon a complete effacement of electrotherapeutics from the college curriculum, but might allow one page of the *materia medica* to refer to this subject.

It is undoubtedly true, that electrical applications by some physicians, are valueless, while others may reach a favorable result. Only those who have taken up this great line of electrical study and research should apply this form of treatment to disease.

Electrotherapeutics is a department of therapy that admits of much enlargement and advancement; and to-day the electrotherapists are alert to their work, demonstrating to the medical profession as well as to the public, what this branch of treatment is capable of doing.

Some years ago, it was the writer's privilege to have charge of the electrical department of the Jefferson Hospital. At that time there was no practical method of teaching this form of therapy to the college students. Through the incessant

work and pleadings of Professor Roberts Bartholow, and also some personal expense, the trustees finally apportioned a small division of one of the smallest rooms for this work. I think the room possibly would accommodate the patient, one student and the demonstrator. The galvanic apparatus (quite a crude affair) was placed on the wall, and a cheap portable faradic battery constituted the outfit. However embryonic this new department was, yet it was such an advancement over previous methods as to warrant its gradual enlargement. Such was the beginning of practical electrotherapeutics at the Jefferson Hospital; and the medical profession of Philadelphia at least, are indebted to Dr. Bartholow for his thorough lectures in electrotherapy, and the added hospital department for practical demonstrations.

Since this inauguration at the Jefferson, other medical schools have adopted this plan of electrical teaching; but until the college curriculum, either in the regular or post-graduate course adopts the study of electrotherapeutics, the graduate will depart from his alma mater with an incomplete armamentarium for his life-work in the treatment of disease.

Charlatans and quacks have availed themselves of electricity in its application to disease, and to-day are harvesting the returns that should properly belong to the legitimate practitioner. The quack realizes the value of electricity, but is limited to the methods of scientific application; and is, therefore, only successful in a small percentage of cases treated. Let the regular graduate in medicine receive a full course of lectures and have the practical applications in electrotherapy shown him, then will he know what class of cases to treat, and be able to show a successful line of treatment.

The future must show the physician as familiar with electricity, as he is with the hot and cold douche; counter-irritants; physical exercises; thermotherapy, and hydrotherapy. High potential currents, and electrolysis with the galvanic current, and the use of the high tension coils in faradism, will all be recognized as powerful therapeutic measures.

The study of neurology involves a fairly good knowledge of electricity, as the greater percentage of neurotic conditions and neuromuscular ailments are amenable to some forms of electrical treatment. It maintains the nutrition of paralyzed muscles while the nerve is undergoing repair. It also relieves muscular pain and spasm, and promotes the general nutrition of the body, more specially the neuromuscular system. In severe cases of trigeminal, intercostal, brachial, and sciatic neuralgias, and in some other forms of severe pain, nothing in the *materia medica* will prove of such benefit without ill effects as the proper application of electricity.

Despite the fact that some surgeons and gynecologists have tried to obliterate from existence electrotherapeutics, and have repeatedly declared this form of treatment dead, yet it is still alive and doing very much good. There are some electrical

*Read before North Branch Philadelphia County Medical Society.

extremists and enthusiasts whose claims have injured and probably retarded its position on the roster of therapeutics. The exaggerated claims of its substitution for nearly all diseases are certainly unfounded and false. Although electricity has been used in the treatment of disease for over one hundred and fifty years, and the obscurity attendant upon these early treatments has never been unfolded, yet the achievements and advances made in apparatus and technic within the last twenty years, has enabled us to progress rapidly in electrical therapy.

The study of electrotherapeutics should command the most serious thought and consideration of the medical college teacher, and also the entire medical profession. No longer should any doubt exist as to the permanent results of this form of therapy. It is a form of treatment in which the therapeutical results are recognized by the electrotherapist, similar to the pharmacologist in his study of the actions of various drugs on the body. We know the differences in the physiological effects, when the various forms of electricity are used. In using the galvanic current, the conditions are markedly changed in the application of the positive and negative poles. It may also act as a tonic, sedative, stimulant, and caustic, and can be used to force medicaments into the organs and tissues, when the stomach could not retain any form of drug.

In that great class of spastic conditions; paresis; paraplegias and hemiplegias; the numerous forms of spinal conditions, involving the cord and its membranes, and the motor and sensory nerves leading therefrom. In the atrophy of the muscles following a neuritis or cerebral pressure; in all these conditions, no method of treatment is equal to that of faradism and galvano-faradism; imparting a passive exercise to the muscle, and a stimulating tonic effect to the individual nerve that supplies the parts involved. In certain peripheral disorders of the motor and sensory nerves, where we have paralyses of sensation or motion or both, no therapy has its equivalent to the proper electrical application, nor will any drug or form of medication restore the atrophied muscles and degenerated nerves to their normal condition.

Realizing the important position that electricity holds as a therapeutical agent, it should certainly receive such recognition as to command more than a casual retrospect from the college professor in his lectures on therapeutics; and a practical demonstration should be given at the clinics of the hospital.

The greater portion of the practising physicians to-day, are totally ignorant as to the actions of electricity, its various forms and dosage. They know nothing about the apparatus and styles of electrodes. Almost daily am I able to witness the lack of knowledge as exhibited by the profession, in electricity. They know nothing of the galvanic, faradic, sinusoidal and static currents; while the ohm, milliampere, rheostat and volt, are terms which seem to be foreign to them. Quite often has the physician been

prompted to use electricity in his practice, and he at once purchases a small faradic battery, which he applies to the patient until the sufferer writhes from the pain produced, which seems to be the signal then to discontinue treatment until the next seance. This goes on for some weeks, the patient not improving, and the physician finally gives up the case, saying "electricity is useless."

A professor in a western medical college states "that in treating a case of choroiditis with faradism, he gave her the positive pole, from five to eight cells, in each eye, for five minutes daily, through a wet sponge, which was followed by great improvement." If this physician used eight cells and a coil, then one of three things was the resultant quantity: (1) The cells were exhausted; (2) the coil was a poor one; (3) or the patient's eyesight was destroyed. He further states: "I don't think we understand as much about electricity as we should; in galvanism, one pole is negative and the other less so, while in faradism, one pole is positive and the other less so." "That," he says, "is the difference in the two kinds of electricity."

The following dialogue usually is heard in the store where electrical apparatus are sold: The physician—"I want to get a battery." Salesman—"What kind of a battery?" Physician—"Oh, most any good kind; I think one of them that buzzes when you start it." Salesman—"You mean a faradic battery?" Physician—"Yes, I guess that's it, and give me a pair of sponges and cords I see them use!" He makes his purchase and departs, feeling that he is equipped for electrical work.

Thousands of batteries are sold by the various manufacturers; and many of the profession who buy them are utterly ignorant of the principles of construction, and equally so of the indications for their use. It is quite uncommon to meet a practitioner (except a neurologist) who understands electrophysics, and important facts relating to the uses for which special forms of batteries are best adapted.

Dr. de Watteville said, ten years ago, "the absence of any theoretical and practical teaching in our medical schools prevents electricity from becoming really popular with the medical profession." At the present time, the general practitioner, as well as the electrical specialist, in order to be a good therapist, must realize the wide range of adaptability of electricity to the treatment of disease. Therefore, the curriculum of all high-grade medical colleges, should have a department of electrotherapeutics. The students must be taught the physics of electricity and magnetism. The action of electricity on the dead and living tissues. They must know the prominent motor points of the various muscles, and understand the reactions of degeneration.

The physician of to-day should be able to point out such diseases that are better adapted to electrical treatment. He must know that strictures and growths are removable by electrolysis. The forcing of medicaments into the tissues by means

of the galvanic current, called cataphoresis, is a permanent means of medication, and must be taught the coming practitioner.

As the accidents occurring constantly in the cities are on the increase, lawsuits and damages compel the electrical specialist to give testimony as to the temporary or permanent condition of the injury. With the proper appliances, we are able to determine the existence, the increase or decrease of pathological excitability, and in differentiating between central and peripheral lesions, as well as the detection of simulation. We are able to see the differences between true organic pains and those of hysteria, and by means of the reactions of degeneration, can give a prognosis that is reliable.

Twenty years ago, electrotherapy was held in very low estimation by most medical men, and reported cures were received with an incredulous smile. The present time demands a proper recognition and able teachers and instructors will be necessary for imparting scientific electrotherapy to the students studying for the medical doctorate.

The physiological actions of the different forms of electricity are being more thoroughly studied than ever before, and consequently their place in therapeutics is becoming more defined and considerably enlarged. This advancement has been productive of two national electrotherapeutical societies which meet annually; and the State medical societies will soon be forced to annex this electrical department.

These statements are undeniable, and are a source of gratification to those who have labored in this branch of therapy; and the time is fast approaching when the sphere of practical usefulness of this powerful agent will be even further extended.

Since the introduction of radiotherapy, an accumulation of new facts showing the beneficial results which may be obtained by a judicious application to malignant growths, has opened a wide territory for original work in electrotherapeutics.

As we become more intimate with the apparatus controlling this electrical power, and this knowledge aiding and improving electrical application, then will the department of electrotherapeutics reach its highest plane, and all the medical profession will be compelled to note the true recognition of electrotherapy.

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Traumatic Syringomyelia.—A unique case in which there were sensory disturbances of one limb, with trophic changes in the subcutaneous tissues, is reported by A. GORDON (*Phil. Med. Jour.*, May 9, 1903). The patient sustained a fall on her back and within a short time developed sensory and trophic disturbances which were limited to the left upper extremity and side of the head. The peculiarity of the case consists in the fact that the symptoms were unilateral and limited, and in the fact that the trophic changes of the subcutaneous tissues cover the entire affected extremity. The latter condition makes the case unique, as all the cases reported with similar conditions presented trophic disturbances only of one portion of a limb.

A CONTRIBUTION TO THE PATHOLOGY AND PROGNOSIS OF THE DISEASES OF THE BLADDER.

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FOLLOWING the general trend of our previous work,* this paper comes as a natural sequence of our former studies on the prostate. In this, our first contribution on the bladder, it is designed to outline the general character of the lesions of the bladder and the frequency of their appearance. As in our paper a year ago, we will in this give a brief résumé of some of the more serious work on the subject that has recently been published, describe what we have done and give our conclusions. It is probably true that an increased adaptability on the part of the profession to diagnose diseases of the central nervous system is responsible for the fact that many diseases of the bladder can now be attributed to some lesion there, which a few years ago would have been considered as commencing in the bladder itself. Still it is not even now so very uncommon for cases of locomotor ataxia to be wrongly diagnosed as bladder disease, and it is still more common to err in cases of myelitis with its increased reflexes. Albaran has recently reported three cases of bladder weakness due to syringomyelia, while the causative part played by neurasthenia in causing urinary disturbance is familiar to you all. Still, judging from our work, the important part played by the nervous system as the cause of bladder disease is even now underrated. Some necropsical evidence which we will present supports this statement. It is generally known, of course, that weak muscles are conducive to bladder disturbance, but accurate measurements of the amount of muscular tissue in the bladder walls have only been undertaken within comparatively recent times, and while we are all more or less familiar with the use of the cystoscope, careful cystoscopic examinations of the mucous membrane of the bladder before and after prostatectomies and similar operations have been almost entirely neglected, and the part which the condition of the bladder must necessarily play in the prognosis of such operations has been omitted.

The most important pathological work which has recently been done on the bladder is the work done by Halle and Motz.† They examined one-hundred bladders with non-tuberculous cystitis. These they divided into three classes. Those consisting of chronic cystitis pure, in

*Observations on the Prostate, 1896; Fallacies in the Treatment of Urethral Diseases, 1901; Nature of Prostatic Hypertrophy, 1902.
†Annales maladies des organes genito-urinaires, Paris, 1902. Anatomie pathologique de la vessie.

which chronic inflammation alone was responsible for the lesion; second, cystitis chronic complex, in which a chronic inflammation takes place on the walls previously modified by the action of various mechanical causes; third, degeneration of the bladder wall through a cause undetermined.

Class first, chronic cystitis pure they found in 12 cases. Of these 5 were women, although in the hundred cases examined by them the proportion of women was much larger.

Women, according to them more often have simple chronic cystitis than men. In all such cases the capacity of the bladder was diminished. There was connective tissue increase, the walls were invariably thickened and the inflammation was a general one. Some of these simple cystitis cases had excoriations of the mucous membrane, some had undergone a villous transformation and some had presented cystic degenerations, some had leucoplastic plaques.

Of the second class 26 cases were complicated by stricture. Some of the bladders were dilated in these cases, some were not. The greater part of the inflammation in these stricture cases seemed to be confined to the back of the bladder. In these cases, while cystitis was present, at the same time the trabeculae were not very much thickened in cases of men under fifty years old. There were 49 cases of cystitis associated with prostatic hypertrophy. In these the capacity of the bladder in 30 cases was increased, in 10 cases it was normal, 9 times it was diminished. The condition of the wall in these 49 cases was as follows:

Thickened in 32, thinner in 11 and 6 times it was of normal thickness. Those in which the walls were the thinnest were, generally speaking, those in which the dilatation of the bladder was the greatest. In some of these prostatic cases there was a tendency to inflammation in the upper part of the bladder wall and the walls had a tendency to thicken on the upper border. "We are probably most of us familiar with this condition, the writer saw a case within the past few days of an enormously dilated bladder with large prostate, in which the thickening was so pronounced in the upper wall of the bladder, that it has been diagnosed as abdominal tumor." In 34 of these 49 cases the trabeculae of the bladder were much thickened. Halle and Motz found in 37 of the 49 cases of bladder inflammation with prostatic hypertrophy deep lesions of the mucous membrane. In 11 cases less profound lesions of cystitis and in 5 cases interstitial abscesses of the mucosa, showing a recent sharp infection. In 16 cases vegetation of the mucosa was present and in 10 cases it was absent, the mucosa tumefied and irregularly presented extreme vascular dilatations which gave an angiomatic aspect."

They also found in this class, and this is very interesting, it seems to us, confirming the views of the nature of prostatic hypertrophy, read before you last year, 10 cases of "prostatics without

a prostate," that is the prostates were atrophied while the whole appearance of the bladder resembled those in whom the prostate was hypertrophied.

We might recall here that work previously done by others and ourselves have shown that prostatic atrophy was, like hypertrophy, often due to inflammation.

Ciencanowski in his book *Prostatic Hypertrophy and Allied Conditions of the Bladder and the Kidneys* (published by E. R. Pelton, New York, 1903), made most careful and exhaustive examinations of the bladder walls, and has made most accurate and painstaking measurements by a system which he devised, of the amount of muscular tissue present in the normal bladder, the amount of connective tissue and the differences in the proportion of the two, which might arise from various causes. He used for the purpose of his examinations, the diseased bladders of 40 old men, 19 of whom had prostatic hypertrophy, the bladders of 5 old women and for comparison the normal bladders of 11 young men.

He found where the muscular tissue became less or the connected tissue more, that the same result happened. For instance in some of his cases where he had clinical histories of the patient during life the necropsical examination seemed to show no diseased condition of the bladder, but there was great general muscular weakness of the individual and on careful examination of the bladder wall a great diminution in the amount of muscular structure was found, the clinical histories of these cases had been that they had suffered during life from much bladder disturbance. He found as a rule, to which there were exceptions, that increase in age meant diminution in the muscular construction of the bladder, that in young men three-quarters of the bladder wall was made up of muscular structure, that in old men this was reduced to two-thirds and sometimes one-half. He found of course that the presence of an obstruction to urinary outflow increased bladder weakness. He found, as did Halle and Motz, the arteriosclerosis played no part in the causation of bladder disturbance. He found in 16 out of 18 cases of prostatic hypertrophy there was hypertrophy of the bladder wall. In two such cases the bladder walls were thinner than usual. The capacity of the bladder he found pretty generally increased with prostatics and in a certain number of cases he found a compensating muscular hypertrophy had taken place, which evidently helped out the individual, unless it was overcome by an increase in the connective tissue due to inflammation. He found in his cases of prostatic hypertrophy no bladder insufficiency when the components of the bladder wall remained normal or within physiological limits, and states that this may happen when the prostatic enlargement is small, or the changes due to age has not effected the bladder wall, but if the prostatic hypertrophy is large, of the muscular tissue is diminished, then bladder disturbances immediately ensue. The three factors to be

taken into consideration in prognosis of bladder disease are as he discovered from his measurements and careful histological examinations; first, the presence of inflammation causing an increase in the connective tissue growth; second, the thinning of the normal muscle structure due to age or weakness, and third, the presence and nature of urinary obstruction. These three factors are all interchangeable one with the other and should be so considered.

The necropsical evidence which we have to offer is as follows:

For the purpose of determining the frequency of bladder disease as it occurs in general hospital practice we have studied our records of 500 consecutive autopsies. The cases on which these observations have been made are taken from the pathological services of the Fourth Division of Bellevue Hospital, the Hood Wright Hospital, Harlem Hospital and the Montefiore Hospital for Chronic Diseases. Hence it appears that they represent very fairly the percentage of bladder lesions as found in a large general hospital service.

Of the 500 consecutive cases, 107 showed marked bladder lesions. This number, while surprisingly large, by no means includes all cases exhibiting bladder disease, for we have excluded from the list all minor lesions.

The most frequent lesion found was that of great dilation, present as an acute condition and without other abnormality, except those immediately consequent upon the dilation. Bladders dilated to less than 1,000 c.c. are not included in this list. Sixty-four of the 107 cases presented this lesion. In 27 of these cases it was produced in the coma of alcoholism 5 times, in that of nephritis 5 times, septic meningitis 3 cases, cerebrospinal meningitis 2 cases, sepsis, gas-poisoning and the like.

The majority of these lesions were induced when the patient was unconscious and perhaps in a moribund condition, but the serious results sometimes following it show the great importance of the liberal use of the catheter in all cases in which coma intervenes. The frequency with which grave lesions follow this condition is perhaps best appreciated when we consider that one of the 4 cases of rupture of the bladder occurred without traumatism in a case of this kind. Two cases of acute cystitis were caused by this distention and five of the eight cases of chronic cystitis with great dilatation also followed from causes of this nature.

Forty-three of all the cases observed were produced in comatose conditions, and in many others this factor was also doubtless contributive or causative. Nine of the cases of coma were of alcoholic origin. Cerebrospinal meningitis, septic meningitis, tubercular meningitis and cerebral hemorrhage follow with four cases each.

Where death does not immediately follow, the pathological changes induced in the bladder-wall by great distention are often of the most serious type. The dilatation serves to separate and tear

apart the muscular walls and to produce a virtual acute muscular incompetence. This is later accompanied by the formation of hyperplastic connective tissue and the permanent introduction of cicatricial tissue into the walls of the viscus, giving rise to serious functional disability. Frequently the epithelial lining of the viscus is also broken, favoring the extravasation of urine and the production of cystitis or even more serious disease.

The alteration which the inhibition of cerebral control produces are almost identically simulated by spinal diseases of various kinds, thus eight of the 107 cases were produced by various spinal diseases. It is, therefore, equally important to supervise the bladder functions carefully in diseases of this class.

Twenty-two of our cases showed acute cystitis. The cause of these varied considerably. In five instances it was sepsis, but whether the cystitis was primary or secondary in these cases can not be definitely stated. Four developed in the course of syphilis, three from salpingitis, three from acute gonorrhea and the other instances from various infectious processes or from the previously considered overdistention. We believe it to be true as the statistics of others would tend to demonstrate that simple cystitis is more common in women than men and believe one cause of it to be that through habit they are more apt to allow their bladders to become overdistended than men. Clinical experience would seem to show the necessity of their medical advisers warning workingwomen particularly of this fault. Syphilis as a cause of bladder disease is also coming more into prominence than in the past. From the evidence above, from the fact that more cases due to it are being recorded and from clinical experience, we believe it will often be found the cause when looked for in cases of an origin at all doubtful.

Chronic ulcerative cystitis with thickening of the bladder wall was found in eight instances. Two of these resulted from enlargement of the prostate with infection, one from chronic gonorrhea and two from lesions of the spinal cord.

One of the most frequent diseases is contraction with great thickening of the bladder wall, 15 of these instances were found. The most common cause of this condition in our cases appears to be hypertrophy of the prostate of which 5 examples were found in the 15. Our statistics differ here from those of Ciencanowski and also those of Halle and Motz as to the causative factor of this lesion.

Concerning the nature of this lesion nothing definite can be said until it is ascertained to what the thickening of the bladder wall is due. This matter we propose to discuss later after we have detailed the results of the examination of the sections taken from the walls of such bladders. After the hypertrophy of the prostate the factors concerned in thickening and contraction of the bladder walls, seem to be old inflammatory processes of various natures for the greater part.

Twelve of the 107 cases show, in the gross specimen, hypertrophy of the wall with dilatation. Four of these twelve were apparently caused by prostatic hypertrophy, two resulted from stricture of the membranous urethra, two from long-standing alcoholism and two from chronic myelitis.

It appears that the most frequent cause of both thickening with contracture and thickening with dilatation of the bladder wall is hypertrophy of the prostate, and it therefore seems necessary that we discuss here, when this condition causes hypertrophy with dilation and when hypertrophy with contraction. From the fact that nine of the fifteen cases caused by prostatic hypertrophy were characterized by one or the other of these lesions, it appears that these are the most frequent changes which are produced in the bladder by prostatic hypertrophy. Our theory is that when the prostatic hypertrophy through rapid development produces obstruction to the flow of the urine, dilatation ensues at once and is probably accompanied by a production within the walls of the bladder of hyperplastic connective tissue, partly in an attempt at compensation and partly as the result of a mechanical inflammation due to distention. Secondary cystitis is then likely to develop, hence examination of the bladder-walls in these cases should show, if our theory be correct, an increase in the connective tissue elements, accompanied, in many cases, with more or less inflammatory exudate. When, however, the hypertrophy of the prostate is slow and the obstruction to the flow of urine correspondingly slowly developed, we should look for a hyperplasia of the muscle of the bladder walls, accompanied by slight, if any, inflammatory reaction, either in the production of an exudate or marked interstitial hyperplasia. We believe that this reasoning is borne out by the findings which we record later in this paper. The assumption is also substantiated by the fact that of our four cases of active prostatitis all save one caused great dilation with cystitis and consequent thickening of the wall.

We believe that we present a somewhat remarkable percentage of cases of rupture of the bladder for we have four cases occurring among the 107 of bladder disease, collected from 500 consecutive post-mortem examinations. Two of these cases occurred in the great dilatation incident to alcoholism, complicated with the infliction of a blow. One resulted in a case, of which we have no history, from causes unknown, one during a drinking bout, associated with hypertrophy of the prostate. The prostatic hypertrophy in this particular case was undoubtedly of subacute origin and gonorrheal in character.

Four cases of neoplasm of the bladder are included in our table. Of these one was primary carcinoma, one secondary carcinoma, which originated in the uterus, one a small round-cell sarcoma and one primary papilloma. Of course, for reasons specified in our previous paper, we have not counted those instances of so-called

"adenoma of the prostate" as among these new growths.

In this tabulation of cases we have endeavored, in so far as possible, to include what appears to us the more important and frequent diseases of the bladder, particularly as found occurring in the course of, or complicating, general diseases. We have attempted to classify the lesions as sharply as possible so that a case should not appear, commonly at least, under two heads. This has necessarily resulted in flaws of exact definition in some instances, for you all understand how impossible it is to place under one heading the often complicated lesions found in a seriously diseased viscus. We have therefore classified under the head of chief lesions where subclassification was not possible.

It is our hope to study each of these lesions carefully, this, therefore, entails a careful clinical and microscopic study of each of the conditions named. Such a study must necessarily be a long one and would extend far beyond the possible limits of a single paper. We therefore present to you this very general résumé of the entire subject as a preliminary communication, indicating the lines along which we expect to work.

We have decided to consider first the condition of thickening of the bladder wall, since we believe this to be one of the most important lesions of the bladder, at least from a clinical standpoint. We regret that we are unable to present to you but nine cases of this condition, which have been studied microscopically, but we feel fairly sure that even this limited number of cases tends to demonstrate certain important facts in regard to hypertrophy of the bladder wall which we hope you will find of interest and, as we believe, of clinical value and significance.

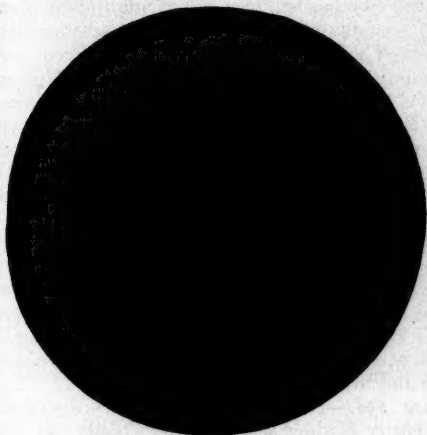
Microscopical Examination.—Sections for examination were removed from two points in the bladder wall in each case. These sections were taken respectively 1 cm. from the apex of the fundus and 3 cm. from the trigone.

Case 72 gave a history of long-standing suppurative nephritis probably of tuberculous origin. Bladder wall generally thickened varying from .5 to .7 cm. in thickness, thickening being most marked in lateral wall of bladder. Sacculum measuring .3 cm. just posterior to the trigone. Mucous membrane extensively infiltrated by pus cells and largely necrosed; submucosa in similar condition; no tubercles present; blood-vessels throughout all coats greatly congested, walls of vessels moderately thickened. Inflammatory infiltration extends from mucous membrane into muscular coat. The connective tissue throughout the entire bladder wall is greatly augmented, the hyperplasia extends to both the intermuscular and the general connective tissue and is apparently entirely free from association with thickening of the blood-vessels. Many of the muscle cells are separated by a growth of the connective tissue not only about the funiculi, but also between the individual cells. Plasma cells are

found abundantly wherever exudation is present. There is no apparent hypertrophy of the muscle and the thickening of the wall is entirely due to augmentation of the connective tissue.

Case 82.—Papilliferous growth from middle lobe of prostate occluding urethra. Bladder wall

Plate 1.

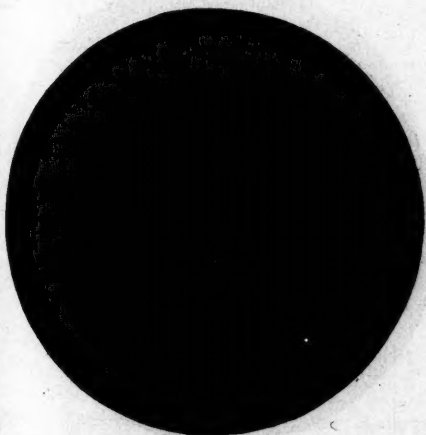


Hyperplastic Smooth Muscle Fibers. Transverse Section. Case 82.

greatly thickened, measures from 1.2 to 2.1 cm. in thickness. Capacity of bladder not diminished and apparently not increased.

Mucous membrane largely macerated. Epithelium eroded in places. Submucosa infiltrated with small round cells, hyperplastic connective tissue

Plate 2.



Hyperplastic Smooth Muscle Fibers. Longitudinal Section. Case 82.

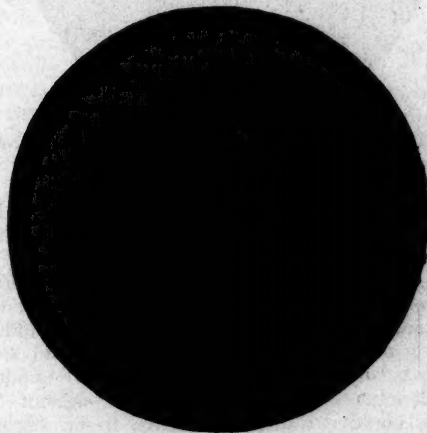
cells, leucocytes and occasional plasma cells. Elastic connective tissue particularly abundant in submucosa and is apparently hyperplastic. General hyperplasia of entire interstitium of bladder-wall, involving particularly the yellow elastic fibers. The hypertrophy is continued from about

the muscle bundles into the funiculi, separating the individual fibers in some places to a quite marked degree. The muscle cells show unmistakable evidences of true hyperplasia. They vary considerably in size, some are greatly enlarged of about the same size as in the uterus at full term. The nuclei of these muscle cells are often eccentric and the prickles show unusually well in some places. The blood vessels are moderately thickened throughout. They are moderately congested. In so far as can be determined from the sections there is no relation between the adventitia of the blood vessels and the general connective tissue hyperplasia.

Case 85.—There is stricture of membranous urethra; moderate hypertrophy of bladder wall, most marked in the inferior portions of the lateral wall. Walls measure from 1 to 1.5 cm. in thickness.

Epithelium of the mucous membrane is eroded in many places and there is a slight round cell

Plate 3.



Hyperplastic Connective Tissue in the Submucosa. Yellow Elastic Fibers Predominate. Case 92.

infiltration of the submucosa. There is a very marked general hyperplasia of the interstitium throughout the muscular coats, also in submucosa and outer fibrous layers. This hyperplasia extends to the intercellular fibrils of the muscle bundles. The muscle cells vary in size from small to large. Many of them are obviously hypertrophied, but connective tissue increase is the most prominent feature of the sections.

Case 92.—Great hypertrophy of the lateral lobes of the prostate with slight enlargement of the median lobe producing partial occlusion of the urethra. The bladder wall varies in thickness from 1 to 1.3 cm. Mucous membrane is intact for the greater part, but occasional small patches of erosion are met with. Submucosa is edematous and shows general connective tissue hyperplasia. Wandering connective tissue cells and plasma cells are quite abundant, but round cell infiltration is wanting. Hyperplastic yellow

elastic fibers are very numerous. Moderate hypertrophy of general interstium, which does not however extend into the muscle funiculi. With a few exceptions, the muscle cells are of the usual size, but occasional bundles are found in which considerable actual increase in size of the cells is clearly present. The blood vessels throughout the bladder wall are moderately thickened but

Plate 4.



Marked Hyperplasia of Connective Tissue in the Submucosa. Case 111.

there is no apparent increase in the subendothelial coat and the vessels are not particularly congested.

Case 103.—Hypertrophy of the middle lobe of the prostate, with moderate thickening of the wall and cystitis. Average thickness of bladder wall .5 to .7 cm. Mucous membrane and submucosa infiltrated with inflammatory exudate which extends in lesser degree throughout the entire bladder wall. Connective tissue slightly increased. No apparent muscular hypertrophy. Thickening of wall is apparently mostly due to the presence of chronic inflammatory exudate. Blood vessels thickened and generally congested.

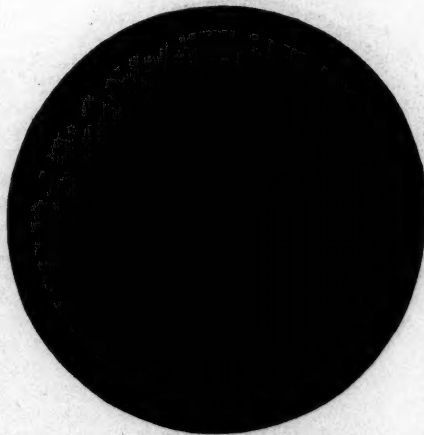
Case 111.—Rupture of bladder wall causing death from hemorrhage. Marked sacculation of wall at several points, apparently caused by hypertrophy of prostate which involves all portions of the gland and produces stenosis of the urethra. Bladder wall varies from 1.4 to 1.6 cm. in thickness. Mucous membrane shows an intact epithelial layer. Very marked hyperplasia of submucous connective tissue. General hyperplasia of connective tissue throughout entire bladder wall. Plasma cells and proliferating connective tissue cells are abundant in the stroma everywhere. The hyperplastic connective tissue fibrils are found separating individual muscle cells as well as bundles. Yellow elastic fibers are numerous. Many of the muscle cells are considerably hypertrophied, while others are atrophied apparently from the pressure exerted by the surrounding connective tissue. Blood vessels

show markedly thickened walls, both adventitia and the subendothelial layers being hypertrophied. Vessels are moderately congested.

Case 134.—Hypertrophy of bladder wall apparently due to obstruction by the enlarged middle lobe of the prostate gland. Wall varies from .8 to 2 cm. in thickness. The inner surface shows heavy anastomosing muscular columns, which give the mucous surface a reticular appearance. Small sacculations lie between these prominent ridges. The epithelial layer of the mucous membrane is generally complete and thick. The submucous connective tissue is made up of a very compact layer of fibrous tissue of the adult type. Yellow elastic fibers are abundant. Plasma cells are numerous throughout the entire wall. The muscular coats show enormous increase in the amount of fibrous connective tissue, most of which is of the adult form. The muscle cells vary greatly in size, some of them being large while others are very small apparently from compression following overgrowth of the endomysium. Atrophied muscle fibers predominate. The blood vessels show a general thickening of their walls and are moderately congested.

Case 138.—Nodular new growths distributed over entire bladder wall, for the greater part covered by normal mucous membrane. New growths apparently carcinoma supposedly originating in the hypertrophied prostate. Slight stenosis of the urethra. Bladder walls vary in thickness from .5 to 2 cm. Submucous tissue almost completely replaced by growth of carcinomatous cells. Growth infiltrates muscular coat separating the funiculi and compressing the muscle cells causing atrophy in many areas. In the parts not involved

Plate 5.



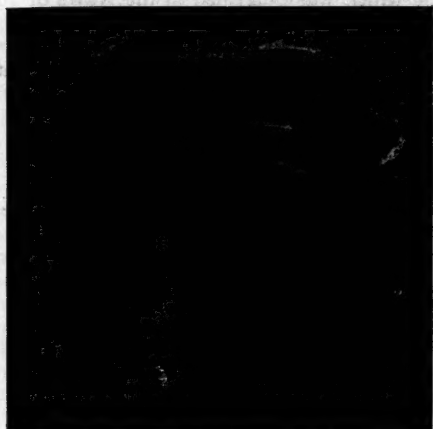
Atrophy and Replacement of Smooth Muscle by Cancer Cells. Carcinoma of Bladder. Case 138.

by cancer the connective tissue hyperplasia is present, but in some places the proliferating connective tissue cells and fibers are separated by the infiltrating cells of the new growth. There is no apparent muscular hypertrophy. The

growth accounts for the major part of the hypertrophy of the bladder wall, but connective tissue hyperplasia also contributes.

Case 162.—Hypertrophy of bladder wall apparently due to stricture of the membranous

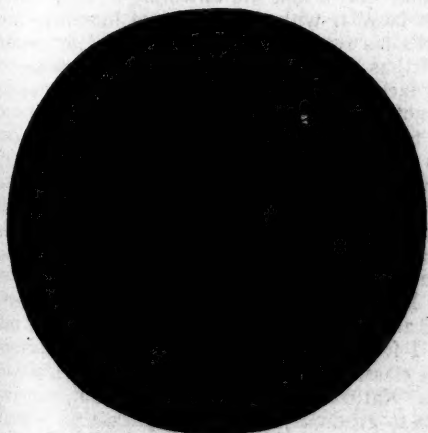
Plate 6.



Muscular Atrophy Due to Interstitial Hyperplasia. Hyperplasia of the Diffuse Variety. Low magnification. Case 162.

urethra. Wall varies from 1.3 to 1.2 cm. in thickness. Mucous membrane shows a normal epithelial layer. The submucosa is thickened and shows marked connective tissue hyperplasia; it is infiltrated by leucocytes, proliferating connect-

Plate 7.



Diffuse Interstitial Hyperplasia with Atrophy of Muscle. Case 162.

ive tissue, and plasma cells. The general connective tissue throughout the entire wall is thickened and some of the muscle bundles show almost complete replacement by the ingrowth of connective tissue which has produced very marked muscular atrophy. Some of the muscle bundles

show occasional isolated hypertrophic muscle cells. The blood vessels are thickened and moderately congested.

From these nine cases it appears that hypertrophy of the bladder wall is due to various entirely different conditions. In so limited a series of observations we are not justified in very sweeping conclusions, but we deem it best to present them in the way of a preliminary contribution on a subject to which we expect to contribute more extensively later.

It thus appears that hypertrophy of the bladder wall, considering the term as simply meaning thickening of the bladder wall, may be due to the following conditions:

1. *Inflammatory Infiltration*.—Thickening of the bladder wall due to an inflammatory exudate either of a chronic or acute nature. This variety of hypertrophy must obviously be due to cystitis in the greater number of instances and the infiltrate may be edematous, hemorrhagic or purulent.

2. *Interstitial Hyperplasia*.—Due to increase in the connective tissue elements in the bladder wall, either of the submucosa, muscular or fibrous coats. The etiological factors involved in the production of this variety of hyperplasia are broadly of chronic inflammatory origin. If the process be most marked in the submucosa, it is generally due to the results of an inflammation primarily of the mucous membrane, that is a cystitis. If, however, the connective tissue hyperplasia be diffuse throughout the bladder wall it is more likely to be due to the results of too great distention, or from pressure, with a weakening of the bladder walls, and a consequent connective tissue hyperplasia in the nature of a compensatory process. It is also possible that connective tissue hyperplasia of the bladder wall may result as the sequence of a local or general arteriosclerosis, due to any cause whatsoever. This point is disputed by Halle and Motz, but we are not yet persuaded to their views on this point. Concerning the type of connective tissue hypertrophy it appears to us that the yellow elastic fibers play an important part in connective tissue hyperplasia of the bladder wall. This is, we believe, an original observation.

As a result of a primary connective tissue hyperplastic thickening of the bladder walls, atrophy of the muscle fibers must necessarily follow with a diminution of the expulsive power of the bladder. This variety might well be named "Bladder-wall hypertrophy" and, in contradistinction, the variety in which functional increase accompanies thickening of the wall, should then be called "Bladder-wall hyperplasia."

It is probable that this variety usually results in cases of obstruction of rather acute origin, or where overdistention of the bladder is permitted, both causing injury to the bladder walls without time being allowed for compensatory hypertrophy of the muscle of the viscus.

3. *Muscle Hyperplasia*.—It is denied by some writers that such a variety of hypertrophy of

the bladder walls exists. We believe that even the small series of cases observed by us proves that this is not only possible but that it is even common, perhaps one of the most common varieties of thickening. It is virtually a compensatory augmentation of the expulsive agents of the bladder wall and is doubtless found where slowly formed stenosis of the urinary outlet exists. It is possible that it follows in some cases the more acute obstructions but it doubtless is most frequently caused where the increase in pressure is slowly and gradually required as from slow hypertrophy of the prostate or obstruction of the urethra from any slowly developing cause.

It is obvious that, just as in the comparable condition of cardiac hypertrophy, that it may be, and frequently is, accompanied with connective tissue hyperplasia, or that, as in the mentioned condition, it may subsequently terminate in interstitial hyperplasia.

4. *Tumor Growth.*—The fourth variety of bladder-wall hypertrophy, is neoplastic, due to the infiltration of the walls of the bladder with the cells of a neoplasm. These neoplasms may be primary, secondary or metastatic. They may comprise any of the numerous neoplasms, but the most frequent are of course carcinomata, papillomata and sarcomata. The result of neoplasm of the bladder wall on the muscular tissue is, we believe, usually an atrophy and the ultimate replacement of the muscle by the tumor tissue.

Mixed types of these various varieties of bladder wall hypertrophy doubtless predominate as is shown in the plates accompanying this paper, and it is probably very rare that a pure type is found.

CONCLUSIONS.

1. The most frequent cause of diseases of the bladder is: (a) Lesions of the central nervous system, causing dilation, (b) septic processes of various varieties, (c) hypertrophy of the prostate.

2. In all conditions in which the spinal cord or central nervous system is involved, frequent and early catheterizations should be resorted to, to prevent the bad effects of overdistention, or the possibility of cystic rupture.

3. Conditions of the bladder must greatly modify the prognosis in operative procedures for the relief of obstructions of the urinary flow, therefore the importance of cystoscopic and other examinations cannot be too strongly insisted upon.

4. Hypertrophy of the bladder wall is due to four different processes, separate or combined: (a) Inflammatory infiltration, (b) increase of the fibrous connected tissue, (c) smooth muscle hyperplasia, (d) infiltration by new growth, (e) the clinical symptoms in hypertrophy of the bladder depend on which of these factors predominate.

47 West Thirty-eighth Street.

Psychopathic Ward in Bellevue.—The name of the Insane Pavilion at Bellevue has been changed to the more elegant and less repugnant Psychopathic Ward.

"IMPRESSIONS OF THE NON-HEREDITY OF ACQUIRED CHARACTERS." A REJOINDER.

BY LAWRENCE IRWELL, M.A., B.C.L.,

OF BUFFALO, N. Y.

UNDER the above heading the MEDICAL NEWS of December 20, 1902, contains a criticism of my article which was published in the NEWS of July 19, 1902. The writer, Dr. Blackwell, challenges the accuracy of almost everything that I assert, but he avoids reason and argument, substituting for them such expressions as "we would naturally infer and assume," and also the opinions of certain persons whom he regards as authorities.

It may safely be said that any man's capacity—or incapacity—for performing scientific work is shown by the methods which he chooses to employ. The investigation of the heredity or non-heredity of the results of use and disuse does not consist in making quotations from authors who have written that alcoholism is transmitted from parent to child, but who have failed to make any distinction between the congenital alcohol diathesis—a hereditary trait—and an acquired drinking habit, the result of association or imitation. Yet this method is Dr. Blackwell's chief stock in trade. It is not at all improbable that some of my critic's authorities, such as the Belgian Academy of Medicine and Dr. Sollier, of Paris, have never considered the difference between the two conditions. "Questions of inheritance," writes Dr. Adami (*British Medical Journal*, June, 1901), "occupy a curious position in the minds of medical men and in medical literature. To judge from the medical press, we medical men are very Gallois—we care for none of these things."

Dr. Blackwell disputes the truth of my assertion that "physicians are unwilling to make themselves familiar with the subject of heredity," and he tells his readers that "it is natural to assume that it has commanded as much attention as any other factor in etiology." In a scientific discussion it is not "natural to assume" very much. To do so is to adopt one of Dr. Blackwell's innovations. I am ready to prove what I wrote, which is corroborated by the statement of Dr. Adami, quoted above. Lectures devoted exclusively to heredity are not usually given in American medical colleges. Students in American medical colleges are not, as a rule, required to study any book on heredity. Having a few years ago asked a number of medical students some questions on general biology, I feel sure that these gentlemen, a representative class, did not know the meaning of Darwin's term, "Natural Selection." One student, who was about to graduate, defined the phrase as "the desire of individuals to become parents!" Treatises on heredity for physicians are not numerous. Medical publishers complain that such books do not sell well. Why? Because doctors do not care to read them. I am very sure that Dr. Blackwell has not studied the works of Weismann, Romanes, Mivart, Eimer—to mention only four—otherwise his paper would not have been written. But he may have all the recent works on

pathology at his fingers' ends. On the subject of heredity, however, they contain extremely little, showing, I think, that it has not received equal attention with other factors in etiology.

After reading twice the first paragraph of the second column of page 1173, I am reluctantly forced to the conclusion that my opponent supposes that Jenner was the founder of "aseptic medication!" Even if this is not the impression which he intends to convey, the discoveries of Jenner and Lister are not very intimately connected with the problems of heredity.

Dr. Blackwell condemns as "irrelevant" my reference to Dr. Wolf's statement that out of 600 Jewish boys "two per cent. were born partially circumcised." Had he read what I wrote with ordinary care, he would have seen that Dr. Wolf was a witness on his side of the case. The facts are simply as follows: Dr. Talbot has written a book upon *Degeneration* in which he attempts to prove that acquired characters are transmitted. Part of his evidence consists of Dr. Wolf's experience with Jewish newly-born infants, which I wrote was "valueless." I gave my reasons.

As Dr. Blackwell appears to have little knowledge of neo-Lamarckism, he may be surprised to learn that the leading neo-Lamarckians claim that the blind fish found in caves are the progeny of fish that became blind by accident. To the neo-Lamarckian mind, therefore, the transmission of mutilations is not unreasonable. I refer my critic to the standard book of the late Professor Eimer, of Tübingen.

The introduction of the Almighty and Abraham does not seem to me to aid scientific investigation. I refuse to follow Dr. Blackwell's lead into the realms of theology.

I have repeatedly asserted that heredity does not involve the passing on from one generation to another of identical phenomena. For example, idiocy, insanity, chorea, etc., etc., may be transmuted in transmission into epilepsy. What is transmitted is simply "a depraved constitution." (I am unable to remember from what author I originally obtained this expression.)

Dr. Blackwell writes "As the tendency of spirit drinking is to induce . . . physical deterioration, we would naturally infer and assume that the acquired habit in one generation would induce the same degeneration in the next; and evolve a hereditary condition." I deny that we have any right to "infer and assume" anything of the sort. The truth in science is not found by gratuitous assumption, but by testing so-called facts by evidence). Although I attach little importance to authority as compared with reason, yet I feel justified in referring to an expression used by Huxley ("Life and Letters," Vol. II, p. 142), "The transmission of functional modifications . . . seems as far off support by trustworthy evidence now as ever it was." Dr. Blackwell's assumption appears to me especially unjustifiable in the face of the opinion of Huxley given (with a proper reference) in my former article.

I quite understand that an elaborate article on

neo-Darwinism *versus* neo-Lamarckism could not be published in the *MEDICAL NEWS*, and on that account alone I confine my statement to a single example which is intended to be a partial refutation of what Dr. Blackwell says may be assumed. A vast number of other examples could be given. The most satisfactory instances are those which are unconnected with pathological conditions, for diatheses play an important part in heredity. The case which I am about to cite, however, has been chosen because it will interest physicians more than any case involving no abnormal features whatever. For many generations man has been a talking animal. His ancestors acquired the capacity to talk long ago. Its acquisition was, in all reasonable probability, due to Natural Selection acting upon a congenital variation. If a child very soon after birth meets with some accident which renders it unable to hear, that child, in the ordinary course of events, never learns to speak, because it is unable to hear, and consequently to imitate the speech of others. This proves that while congenital capacity to learn to talk may be hereditary, having originated and having been preserved by Natural Selection acting on fortuitous variations, as I have previously stated, yet the actual use of the vocal organs, a characteristic acquired a great many years since, is not transmitted, and each generation must learn the functions of the voice for itself. If this were not so, even congenital deafness would not be invariably accompanied by speechlessness when the organs of speech are normal.

According to Dr. Blackwell, the occurrence of atavism (he does not use that word, it is true, but writes that "heredity often overleaps one generation. . .") makes it difficult to say whether the alcohol habit is hereditary or acquired. It gives me great pleasure to agree with my critic upon one point. It is undoubtedly difficult to distinguish between an inebriate who was born with the alcohol diathesis and one who was not. But what of it? The remark is about as important as saying that disease often causes death.

Dr. Blackwell claims that "it is difficult to conceive of the existence of a congenital disease without recognizing its prenatal entity." I go much further. I say that it is impossible to conceive such a condition. Nobody has asked him to conceive anything so absurd as congenital disease that was not prenatal. He has not taken the trouble to read what Dr. Adami has written with the care which it deserves. Here are the distinguished pathologist's words: "The individual begins the moment that fecundation is accomplished, the moment the nuclear material of the spermatozoon fuses with the nuclear material of the ovum and these twain become one. Compared with this event, birth is seen to be of secondary importance, for the intra-uterine association of the embryo with the maternal tissues is but one means employed by a restricted number of species to insure the satisfactory nourishment of the individual during the earlier stages of development. The recognition of these facts is essential for any

serious study of the problems of human inheritance. Any disturbance due to influence affecting the individual from without while *in utero* is *acquired*. It certainly must not be spoken of as inherited; it is an antenatal acquirement or is of *congenital* origin. That alone is inherited which is the property of the germ plasms from which he originates, or is produced by the interaction of those germ plasms." I should suppose that nothing could be any clearer in meaning than this. If, as Dr. Blackwell asserts, the average mind finds it difficult to follow this reasoning, then the average mind must represent a distinctly low order of intelligence. There can be little doubt that any physician can easily grasp the ideas which Dr. Adami wishes to impress. He was not, of course, writing for the laymen. Syphilis may, I believe, be conveyed by the placenta, and an infant may be syphilitic at birth. But this does not constitute hereditary syphilis; it is unquestionably congenital syphilis. I do not know of any case in which phthisis has been found in a newly-born child. This disease in very young children is, I understand, usually due to post-natal causes, such as kissing by a phthisical parent. If, however, any instance is on record of consumption in a child at birth, it would probably be one of the rare cases in which the micro-organisms were conveyed by the placenta, constituting, not hereditary transmission, but that infection of the germ-plasm which I have suggested elsewhere might be indicated by the word "spermiasm"—σπερμα = germ + μασμα = stain. Even supposing that the ovum, or the microscopic spermatozoon could be proved to harbor pathogenic bacteria, it would simply show a similar condition, and would not indicate that micro-organic diseases were hereditary in the proper use of the term.

The argument which I used to show that the cumulative influence of alcohol upon the Jews would, if acquired alcoholism were hereditary, have wiped us (Jews) out long ago, is not applicable to the American nation, for the more than obvious reason that the American nation has not existed for innumerable generations, and has consequently not consumed alcohol for several hundred years. I do not profess to understand Dr. Blackwell's remarkable logic, and I repeat that if acquired alcoholism were hereditary, and any Jews were left upon the face of the globe, they would necessarily be terrible drunkards, having inherited the sum total of the drinking habits of many ancestors. The probability is, I am sure, that, were acquired alcoholism hereditary, the Jewish race would now be as extinct as the dodo, because every member of it would, many decades since, have died as a result of alcohol poisoning. There is a little doubt that excessive indulgence in alcoholic beverages tends to produce sterility in men. As to women, I do not find any positive statement by recognized authorities.

Dr. Blackwell's quotations, some of them without references for verification, are from writers who do not differentiate between acquired and congenital alcoholism. Dr. Crothers, as far as I

have been able to ascertain, has not written one word to indicate that he has paid any special attention to the difference between a patient who has inherited the alcohol diathesis, and one who, without inheriting this trait, has become a drunkard through resorting with inebriates. I do not know of any physician who has devoted much time to ascertaining the *cause* of the disorder known as alcoholism in each patient.

In Darwin's earlier works there are a few instances in which he appears to have thought that acquired characters were hereditary. But Darwin died twenty years ago, and at that time the discussion of neo-Lamarckism had not been thrashed out. Indeed, it had hardly commenced. I believe that the late Mr. Romanes had talked with Mr. Darwin upon the subject, but the latter had not given it detailed examination, and no man can truthfully say that Charles Darwin has anywhere written that *acquired* alcoholism is hereditary.

Having now answered all of Dr. Blackwell's contentions, I beg leave, in order to make my meaning perfectly clear, to state the following points:

Neo-Darwinians and neo-Lamarckians agree that congenital characters are hereditary.

The alcohol diathesis is a congenital trait, and is undoubtedly transmitted. Unless my observation is at fault (I must once more repeat that I have had no medical education whatever), it is closely connected with the phthisical diathesis and the insane diathesis, both of which are markedly hereditary.

Speaking for myself alone, and possessing no right to speak for others, I have never asserted that acquired characters *cannot* be transmitted. I merely assert that there is at present no reliable evidence that any acquired trait is transmitted, and that, up to now, whenever an instance of the supposed inheritance of a functional modification has been properly investigated by competent observers in a scientific manner, the so-called "proof" has broken down.

MEDICAL PROGRESS.

NEUROLOGY AND PSYCHIATRY.

The Etiology of Trembling.—Pathology recognizes a number of muscular movements which are not voluntary and yet not reflex; which are transmitted along the tracts of voluntary movements, but do not obey the will; which like the will originate only during the hours of waking but do not serve any of the purposes of this period; which proceed with the same regularity as the physiological functions but are nevertheless not of a physiological nature. This class of movements is represented in a most typical manner by the act of trembling. In answer to the question as to the source of this movement, A. ADAMKIEWICZ (Zeitsch. f. klin. Med., Vol. 48, Nos. 3 and 4) states every tremor is a disturbance of equilibrium. Trembling arises during waking hours only, like consciousness and volition, and disappears during sleep. We must assume that the act of trembling is not only the product of weakened power and increased tension of the muscular apparatus and may appear in a functional or organic form, but is

also due to a double stimulus, one visible and the other invisible. It comes on either as an accompaniment of voluntary movement or spontaneously, as an independent phenomenon. In the first case the tremor accompanies every intended movement, whenever the system of pyramidal fibers is weakened and the muscles are under abnormal tension. Most text-books are therefore in error, when they state that an intentional tremor is only to be found in multiple sclerosis. Fright, fever, overexertion, exhaustion, weakness and poisoning, are all accompanied by trembling, whenever the individual who may happen to present these conditions attempts to use his muscles. All these cases are dependent on a single cause—the increase in muscular tension with a simultaneous diminished resistance in these organs. The condition may be compared to what takes place in a tense string or a steel rod, the vibrations being in exact proportion to the degree of tension or elasticity, and the weaker the latter may render the substance, the greater the ease with which the vibrations may be induced. As regards the spontaneous tremors, the author believes that it is entirely due to internal causes, and these are associated with the physiological conditions of the period of wakefulness. Sleep and waking physiologically considered, are nothing more than varying states assumed by the ganglion cells of the cerebral cortex. It follows that the cause of spontaneous tremors must lie in these cells, and as it only comes on during the period of waking, it is probably due to the same stimulus which incites the cortex to activity and stands in no relation to any psychical phenomenon. It is evident therefore that trembling is nothing more than a pathologically increased "tonus" (chronic contraction), which is kept up by an invisible stimulus.

Relation of Alcoholism to Insanity.—In a ten years' experience in the Insane Asylum of Castel d'Andorre, G. LA LANNE (*Jour. de Méd. de Bordeaux*, April 5, 1903) has been impressed with the small number of cases in which alcoholism could be invoked as an etiological factor in insanity, this being the more surprising in a region in which the chief source of income is the vineyard and winepress. During the ten years (1891 to 1901) 318 patients were admitted to the asylum, for the treatment of various mental affections; and of this number but sixteen owed their malady to acute, subacute or chronic alcoholism, a proportion of 5.03 per cent.; this being practically the proportion noted by Régis in the same institution in the preceding twenty years (1871 to 1891). Hence the author concludes that the prevalence of alcoholism has not increased, at least in that region, during the ten years which this investigation covers.

Paralysis Agitans Combined with Tabes.—In this very interesting case both diseases were found in one patient. DADDS (*Revista Critica di Clin. Med.*, No. 10, 1903) found the patient, who had for four years suffered from a classical form of tabes dorsalis with definite symptoms of Parkinson's disease; for the next four years both diseases, though found in one individual, showed their individual characteristic symptoms. An histological examination (patient succumbed to a cystitis of several months' duration) showed certain nerves, as the radial, median, sciatic, anterior tibial, etc., in a condition of perfect integrity; there was, however, atrophy of the posterior roots of the sacral, lumbar and inferior dorsal regions; thickening of the meninges especially posteriorly. There was also seen a typical degeneration of the posterior columns, and of the posterior gray substance. The muscles failed to show any notable changes. Besides the mentioned lesions none others were found that could possibly be accounted for by the diseases in question, and it thus be-

comes clear that both the affections ran their individual courses not only clinically but also pathologically. In this as in other cases there were found no alterations characteristic of Parkinson's disease. The author assumes that in all probability disturbance of the function of organs which pass through the cord in the posterior columns and suppression of the function of a great number of posterior roots exert no influence in the production of paralysis agitans. The fact that the pyramidal tracts were found entirely free from any changes leads us to surmise that these tracts as well as their centers of origin, in which there were demonstrated but slight lesions of recent date, cannot show any marked anatomical lesion which would correspond to the symptomatology of paralysis agitans.

Nerve Suture and Nerve Degeneration.—In a study on the subject of Nerve Suture and Nerve Degeneration, P. B. HENRIKSEN (*Lancet*, April 11, 1903) says, considering the question of whether a degenerated nerve can be supposed to be to some extent conducting. This question may be solved in two ways, either by proving conducting elements in the degenerated nerve or by proving effects of the nerve function during the degeneration period. According to what has formerly been mentioned, the new fibers must be supposed to be formed of elements in the peripheral part of the nerve. What are these elements, and at what time can they be shown as continuing courses fit for conducting a nerve impulse? When a nerve is divided the weight of a corresponding muscle will diminish rapidly. By weighing the muscle twelve days after dividing one peroneal nerve of a rabbit it was found that the muscle corresponding to the divided nerve weighed 4.77 grams, while the muscle on the other side weighed 6.98 grams—a difference of 33 per cent. When the nerve united again motility comes earlier than the electrical reaction. In several of my experiments the difference seemed to be considerable, as the animals could use the operated limb almost as well as the other limb long before electrical reaction was observed. If the muscles have thus resumed their activity, and in consequence of a return of nerve conduction, one may suppose that this also may be shown by changes in the microscopical appearance of the muscles or in the cessation of atrophy or increasing weight. To examine these circumstances, the third series of experiments was made in the following way. The peroneal nerve was divided on both sides. On the one side one of the ends was pulled out through the slit in the fascia and fixed subcutaneously, while the slit for the rest was closed with catgut. In this way the nerve was prevented from uniting. On the other side the divided nerve was permitted to unite. The animals were killed with some days' interval, and both the united nerve and the central and peripheral end of the non-united nerve were hardened for microscopical examination. The muscles supplied by the peroneal nerve were carefully dissected out as similarly as possible on both sides and were then immediately weighed. Pieces of the muscles were cut out from corresponding places on both sides and hardened in formalin for microscopical examination.

Hypnotics and Their Dangers.—In a treatise on Some Dangers of Hypnotics, NESTOR TIRARD (*Lancet*, April 11, 1903) draws the following conclusions. He says that he is convinced that in the employment and in the selection of a hypnotic, the sleeplessness is perhaps the least important factor to be considered, although it may be the sole symptom of which complaint is made. The cause must be ascertained, together with any indications of idiosyncrasy. The coexistence of other diseases must influence the selection of the hypnotic, and even when, for the individual case, a suitable

hypnotic has been found, risks of repeating moderate doses must be borne in mind. Generally the dose has to be gradually increased especially when the cause has not been ascertained or satisfactorily dealt with, but with some drugs, e.g., sulphonal, trional and tetronal, the danger appears to lie in the total quantity taken, even though each dose may have been small. But perhaps the greatest danger of all is incurred when the patient is given a prescription for a hypnotic and this danger has certain analogies with the medicinal employment of alcohol. Many of us believe that at the height of fever or in conditions of collapse, alcohol is often necessary, but it is never recommended to our patients for indefinite use, still less for increasing doses. Armed with a prescription for hypnotic patients commonly go on taking the drug long after the relief of the special circumstance for which it was prescribed, and the prescription may be used to facilitate the acquisition of large quantities of a dangerous drug obtained, perhaps, at several establishments in small amounts. Notwithstanding the relief which many have derived from the use of hypnotics, he is in favor of any step which tends to prevent their administration except by the medical man or under his immediate directions. He has seen so much of the dangers of hypnotics that he would prohibit their sale to the public or would allow them only to be dispensed to a freshly dated prescription, which should be retained by the druggist or returned to the prescriber.

Nerve Implantation.—In doing an extensive resection of bone necessitated by a suppurative otitis following an otitis, KORTZ (Deut. med. Woch., No. 17, 1903) found that the facial nerve interfered with the knife and had to be cut at its point of exit from the stylomastoid foramen. As it was impossible to unite the divided nerve ends to each other, he sutured the distal extremity of the facial to the hypoglossal nerve, the latter being more accessible than the spinal accessory, recommended by other operators. Subsequently there developed a complete paralysis in the domain of both nerves and a reaction of degeneration. After six months, electric response and active movements gradually returned. It was also noticed that movements of the facial muscles were accompanied at the same time by movements of the muscles of the tongue and vice versa. Because of these objections, the author advises against implantation into the twelfth nerve and recommends the employment of the eleventh nerve for this purpose as its functions are of less importance.

Gastric Digestion in the Insane.—The gastric digestion and especially the work of the gastric glands has been investigated on a series of insane by USCHENKO (Prak. Vrach, No. 9, 1903). The series embraces 25 insane patients, 3 melancholiacs, 2 maniacs, 2 suffering with catatonia, 1 with hysterical psychosis, 1 with neurasthenic psychosis, 1 acute hallucinatory psychosis, 6 general paralytics, and 9 with various forms of paranoia. He found that in melancholia there is no gastric digestion during the first hour after ingestion of food; later on the process of digestion starts up rather slowly and continues so for quite a long time. The gastric motility is thus evidently exaggerated in the insane. In one of the maniacs the first hour of gastric digestion was similar to that in melancholia, but later on the juice increased in quantity, the acidity became greater, and there appeared free HCl and peptone; in the other case there was a sufficient secretion of juice during the first hour, but the activity of the glands diminished considerably in 2½ hours. In both cases there was an increase in the motile ability of the stomach. In the hysterical psychosis as well as in the cases of catatonia there was absent the psychic period of digestion corresponding with the absence of appetite; in catatonia the

digestive powers of the patient increased together with the general improvement. In the paralytics the gastric digestion was normal in the beginning, but gradually the quantity of the secreted juice began to diminish and the digestive process was interrupted, showing an asthemia of the nervo-glandular apparatus of the stomach. In the paranoiacs there was a sufficient gastric secretion during the first hour, and this continued so during the whole process of digestion.

PHYSIOLOGY.

The Anesthetic Action of Yohimbin.—The effect of this drug on the mucous membranes and also on the sensory and motor nerve fibers has been made the subject of a series of animal experiments by A. LOEWY and F. MULLER (Munch. med. Woch., April 14, 1903). In comparison with cocaine they found that the two drugs varied from the quantitative standpoint, but qualitatively acted about the same. By direct application on motor and sensory nerves of the yohimbin, their power of conductivity was diminished and even stopped. Furthermore the application on the sensory nerve endings of the mucous membranes caused anesthesia. As with cocaine, this effect is only a temporary one and is succeeded by normal conditions. The practical value of this anesthetic is still in need of clinical tests. A series of similar experiments have also been made for determining the effect on the sympathetic system. Injections into the dural sac have been made and the action studied on the vasomotor distribution of various vascular areas. These observations are to be published at a later date.

Protoplasm and Enzyme.—That enzymes are not of a protoplasmic nature is maintained by T. BOKORNY (Pflüger's Archiv, Feb. 2, 1903). The experimental grounds for this conclusion are as follows: The assimilative capacity as well as the other functions of protoplasm is in certain fungi not diminished in the presence of a one-per-cent. mineral acid. Most enzymes cannot resist such a strong acid. Invertin is weakened by the action of one-per-cent. hydrochloric acid for twenty-four hours, while by this agent zymase is rendered inert. Some kinds of protoplasm are less sensitive to the action of alkalis than most enzymes. Thus certain bacteria grow in the presence of one per cent. of soda, while by this agent invertin is destroyed in a few days. There is no agent toxic to protoplasm which is not at the same time toxic to the enzymes, and the reverse is true. If an enzyme shows marked invulnerability at the ordinary temperature, it may still be destroyed by the use of 30 to 35 degrees of heat in addition to the toxin. Zymase stands next to protoplasm in regard to its power to resist destructive influences. The real truth as to the protoplasmic nature of the former can only be determined when the presence or absence of a definite structure in the enzyme is discovered. For this discovery there are no means at hand. The fact that certain influences destroy the activity both of protoplasm and enzyme, is insufficient to settle the problem. The fact that enzymes are soluble in water testifies against their protoplasmic nature, for protoplasm has never been made to enter into true solution. Still in the case of a solution, if this is a "micellar" one, organization, i.e., definite specific grouping of the molecules, is possible.

Absorption of Granular Materials from the Intestine.—The question of how the absorption of granular materials, such as blood cells, desquamated epithelium and other detritus, takes place, has long been a matter of controversy. The presence of intracellular stomata is now disputed by several investigators. A very complete communication on this subject has just

been made by W. G. McCallum (Bull. Johns Hopkins Hosp., May, 1903), who has made experiments for the purpose of determining the path taken by solid granules as they leave the peritoneum. It was first necessary to study in detail the tissues directly involved. This showed that the peritoneal cavity is lined by a complete layer of peculiar epithelial cells which lie on a basement membrane uniformly thin, except where it overlies the lymphatic lacunæ, in which position it is represented by a lattice work of fibrils separating the epithelium from the surface of the lymphatic. Approaching the peritoneum at these points are the oval sacs or lacunæ which are the absorbing terminals of the diaphragmatic lymphatics and which, while possessed of a complete lining of endothelium are separated from the peritoneal cavity only by the loosely woven connective tissue and the peritoneal epithelium. The three elements which can afford a certain obstruction to the progress of the absorbed material are the peritoneal epithelial layer, the basement membrane and the lining endothelium of the lymphatics. The author's experiments confirmed the idea that phagocytosis played a very important part in absorption from the peritoneum but also that the mechanical aspiration of granules through the lax cell membranes by the respiratory movement, is in addition possible. It does not seem probable that there exists any open communication between the peritoneum and the lymphatics, nor can the theory be upheld that the peritoneal cavity forms a part of the lymphatic system. Each of these cavities is lined with cells which retain their specificity throughout and nowhere merge into one another or into the adjacent connective tissue cells. This has been confirmed by embryological investigation. The individual cells in any of these membranes are separable by adequate force and the mechanical violence of the respiratory movements is sufficient to force fine granules between them.

The Significance of Leucocytosis.—The generally accepted definition of this term considers the condition to be one where there is an increase in the number of leucocytes in the peripheral blood over the number normal in the individual case, this increase never involving a diminution in the polymorphonuclear varieties, but a marked absolute and relative gain over the number previously present (Cabot). The experience of R. N. Wilson, (Jour. Am. Med. Ass'n, May 2, 1903), has led him to question the above definition and also to call attention to some other forms of leucocytosis. From his observations he believes that the term should include every increase in the absolute number of the leucocytes of the blood examined, as well as every increase in the percentage count of the various leucocytic forms. A leucocytosis, of whatever nature, must always be regarded as a clinical sign of importance, but never of such weight as to influence against equally convincing physical signs. A high percentage of the polymorphonuclear forms in the absence of an absolute leucocytosis indicates the presence of pus or of some grave inflammatory process, together with a low vitality of the patient. Specific factors may rarely exert such an unusual influence as to interfere with the customary reaction of the polymorphonuclear cells. Single counts of the leucocytes, or single estimates of the leucocytic percentages, are often misleading; while a persistent series of observations will seldom fail to aid in the diagnosis and treatment of the condition. A gradual but steady rise in the total count of leucocytes above the customary number usually indicates the presence of an active and augmenting and inflammatory influence. When this increase reaches large proportions it may be looked upon as an indication of the presence of an active leucocytic process, provided the clinical picture also bears out the suggestion.

PEDIATRICS.

Flatfoot in Infants and Children.—This subject has received but little attention and the condition is often overlooked. R. W. Lovett (Jour. Am. Med. Ass'n, April 18, 1903) describes the condition in infants and children and offers suggestions for treatment. It is usually manifested in heavy infants who walk early, and especially if they have any grade of rickets present. They begin to tread on the inner border of the foot and the inner malleolus becomes more prominent than it should be. There is rarely pain present, but they walk with feet wide apart, with an unsteady gait, and trip easily. The foot remains perfectly flexible. Such children are not necessarily weak or debilitated, but are often robust and heavily built. The affection is invited by the bad shape of many children's shoes. Prescribing in these children the wearing of moccasins or ordering them to walk in their bare feet, seems unphysiological, because the weight comes on one foot less able to bear weight than if a proper boot is worn. Snugly fitting shoes are recommended with the inner edge of the sole and heel thicker than the outer edge by one-eighth to one-quarter of an inch. This causes the foot to slide down the inclined plane to the outer side of the boot. A more useful method is by means of a graduated pad of felt or soft leather incorporated in a thin inner sole, which raises the arch of the foot and holds it on its outer border. In older children the treatment does not differ essentially from that in adults, and plates are generally necessary. Two matters are essential,—the foot should be supported in a correct position and the child should be trained in the use of the muscles supporting the arch and should be drilled in correct standing. The prognosis in both infants and children is in general excellent as to complete recovery, but exercises must form an essential part of the treatment.

Treatment of Infantile Convulsions.—A number of essays have been written for the N. Y. Med. Jour., March 14 and 21, 1903, upon the best method of treating infantile convulsions. A. McMAHAN, who received the prize for such an essay, divides the treatment into four heads: (1) The treatment of the convulsion; (2) the removal of the exciting cause in the given case; (3) the prevention of any known cause acting again as an irritant, and (4) the strengthening of the infant's unstable nervous system. For the immediate relief of the convulsion he recommends a few whiffs of chloroform while the temperature is being taken and the history obtained. If the spasm is very severe or prolonged, morphine gr. $\frac{1}{16}$ may be used hypodermically or chloral 3 to 8 grains in four ounces of water, may be injected into the rectum. If the rectal temperature is below 104° F., a warm pack with ice to the head will be of benefit. If the temperature reaches 105° F. or 106° F. a cold or ice pack with ice to the head and at times heat to the feet will be required. The pack, cold or warm, will (1) reduce the pyrexia, (2) increase peripheral circulation, (3) lessen the rigidity, and (4), assist in elimination and also permit in cases of overeating and acute indigestion without much disturbance to the child, of the giving of stomach or intestinal lavage. Where lavage is impracticable syrup of ipecac, one dram, or apomorphine gr. $\frac{1}{16}$ to $\frac{1}{8}$ may be employed. If stimulation is required, whisky by rectum, strychnine and glonoin are the best. If there has been a loss of fluids, as in dysentery, saline infusions are beneficial and in the various intestinal disturbances high colon irrigations with saline solution give very good results. While the child is in the pack watch the temperature closely and remove when the temperature falls to 101° F., again applying it when necessary. The prevention of convulsions, because of their serious effects upon the child, becomes of the ut-

most importance and to remove all predisposing conditions one should (1) give proper food at proper intervals, (2) proper hygienic surroundings, (3) remove physical defects and abnormalities (adherent prepuce or clitoris, foreign bodies in the ears or nose, and adenoid growths in the pharynx, (4) eliminate stress, (5) prevent birth asphyxias and apoplexus where possible, and (6), prevent by law, an inheritance to children of a syphilitic, alcoholic, idiotic, hysterical or epileptic predisposition.

A Means of Administering Quinine to Children.—The well-known difficulties of giving quinine to children in pill or powder form have usually made it necessary to mix it with coffee, milk or syrup. The little patients, however, usually vomit the remedy given in this manner. On the other side of the question, it is not easy to replace the sulphate of quinine by the less soluble salts, which, although they may be tasteless, are difficult to take, because they fill up the mouth. *Boerd* (*La Sem. Méd.*, March 4, 1903) prescribes the sulphate of quinine to children of any age, as follows: He mixes in a mortar 1 gram of sulphate of quinine with 8 grams of olive oil. Twenty drops of this mixture contains 0.05 grams of quinine. In turning these drops into a teaspoon, filled with cold, fresh milk, preferably much sweetened, they will form in the midst of the milk, and on its surface, a little island. Each little particle of quinine having been enveloped by the oil, slips easily over the mucous membrane of the mouth of the child, who does not seem to suffer the least possible repugnance.

OBSTETRICS AND GYNECOLOGY.

A New Method of Suturing the Fascia and Levator Ani in Perineorrhaphy.—The fact that so many operations have been devised for laceration of the perineum proves that repair of such injuries have not been uniformly satisfactory. In the opinion of G. H. NOBLE (*Am. Gyn.*, March, 1903), the reasons for these failures lies in the fact that a true appreciation of the value of the fasciæ and the levator ani has been overlooked by operators in performing a perineorrhaphy. Having experienced the same difficulties as the other operators, the author has devised the following operation, the technic of which is as follows: (1) The perineal denudation should extend from the skin to the upper border of the levator ani muscle and from the rectal angle to the point marking the posterior commissure. The latter can be recognized by the existing scars. This makes a quadrilateral surface on each side of the vagina, the anterior is shorter than the rectal border, as the cutaneous and vaginal lines converge slightly at their anterior extremities. (2) The next step is the exposure of the levator ani muscle. This is done by inserting the thumb and finger in the vagina and grasping the muscle as it courses along the vaginal border of the denuded surface. It is then drawn out and dissected from the surrounding tissues. (3) The vaginal margin is closed by inserting medium-size catgut sutures about three-eighths of an inch from the edge of the wound, penetrating first the vaginal mucous membrane, and next the rectovesical fascia, issuing from the space formed by separating the latter and the levator ani muscle. They cross to the opposite side, pass between the levator ani muscle and the rectovesical fascia, puncturing the latter about three-eighths of an inch from the edge, and emerge upon the vaginal surface. The sutures are tied if they are interrupted, as they are inserted and repeated until the fascia is closed as far as the crown of the perineum. When using the continuous sutures, the author frequently ties them at the posterior commissure and leaves the ends long, turning them aside tempo-

rarily to be used later in closing the margin of the skin. (4) The edges of the levator ani muscles are approximated in the median line by three kangaroo sutures, one just in front of the rectum, the second just below the posterior commissure, while the third is placed midway between these two. When tied the muscles are brought into contact in the median line. (5) Four kangaroo sutures are passed around the bulbocavernosus and the conjoined tendon formed by the triangular ligament and the deep fascia. When the sutures are tied, the part embraced in their grasp comes in close contact and the edges of the deep fascia and the triangular ligament are brought into accurate apposition. The skin and superficial fascia are closed by the sutures left hanging at the crown of the perineum. The advantages of the operation are: (1) Greater strength contributed by the union of the fascia. (2) Better approximation of the muscles on either side by forming a band across the rectovesical cleft, converting it into two openings, rectal and vaginal. (3) The muscles do not separate and leave a thin perineum as in the case of lateral union of the muscular edges. (4) It contracts the vagina, draws the perineum forward and effects a better closure of the introitus. (5) It gives better support to the base of the bladder. (6) It draws the posterior wall of the vagina forward in front of the cervix uteri, thus having a tendency to prevent forward slipping of that part of the uterus, and diminishes slightly one of the contributing factors of retroversion.

Pus in the Female Pelvis.—The occurrence of a purulent collection in the female pelvis is due in most cases to inflammatory disease of the ovary or tube, under the caption of pyosalpinx or tubo-ovarian abscess has been extensively discussed by gynecologists. Pelvic cellulitis is now recognized as a rare condition, and while the cellular tissue at the base of the broad ligament or anterior to the uterus may become infected and form an abscess, yet the condition pure and simple is seldom observed. Tubal and ovarian abscess, suppurating fibroid and abscess of the uterine wall, hematocele (such as ruptured extra-uterine pregnancy which has become infected), suppurating dermoid and ovarian cysts, and, lastly, appendiceal disease, may be causes inducing an abscess in the pelvis. JOHN B. DEAYER, in further discussing this question says (*Am. Gyn.*, March, 1903), that a peritonitis of an overlying fibroid of small size and of a sufficiently long pedicle to allow its migration into the right iliac fossa, or in close proximity thereto, also an infected fibroid of this character due a contortion of its pedicle, may simulate appendicitis. A small ovarian cyst of the right side twisted on its pedicle, may simulate appendicitis in the pelvis with abscess. Extra-uterine pregnancy gives an irregular history (menstrual), metrorrhagia, and sometimes the other subjective signs of pregnancy with the absence of the earlier history of appendicitis. It is very important here to elicit a careful history of the case. The presence of an infected appendix in the pelvis of a female may produce complicating conditions of the uterine adnexæ, or may be the infecting agents for later pathological lesions of these organs. The percentage of cases in which acute appendicitis exists in the female, has been variously estimated by different observers, and with wide variation. Of the last five hundred cases which the author operated upon, 170 were women, 34 per cent. Chronic inflammation of the appendix occupying the pelvis occasions symptoms which may be confounded with disease of the uterine adnexæ or retrodisplaced uterine fundus. The majority of instances of pelvic abscesses with the appendix above the ileocepectical line are due to secondary involvement from a primary focus, where bacterial infection is very virulent and the ad-

hesions below are sufficient to "wall off" the abscess above the diseased appendix. The leucocytes increase in number with a predominance of the polynuclear forms. With the appendix below the ileocecal line, somewhat the same course is observed. The onset is sudden, nausea and vomiting are more constant, and the bladder and rectal irritability are more marked. The symptoms of a pyosalpinx due to appendicitis, are those of appendicitis in the pelvis followed by dysmenorrhea and irregular menstruation, sometimes leucorrhea and other symptoms of unilateral pyosalpinx without the indurated feeling of the vagina. There is no history indicating previous gonorrheal infection. Perhaps it is just as well to assume that in all cases of pus in the pelvis, due to appendiceal disease, the adnexæ must become involved sooner or later. A collection of pus in the pelvic cavity demands early removal, and the method of operating will depend upon its location, extent and the degree of sepsis from which the patient is suffering. Using the finger to evacuate the pus after incising the posterior wall is very liable to spread the infection from the pelvis upward. Pus in appendicitis is of a vicious nature and exceedingly virulent, while it is well known that the accidental rupture of a pyosalpinx while delivering a tube, may spread the pus over the bowel without causing peritonitis. In the after-treatment of this operation, care must be taken that the cavity is always open and draining. This is difficult to do, as the repacking with gauze is attended with intense pain and there is some danger of breaking through the wall of adhesions and infecting the general peritoneal cavity. An abdominal section is to be preferred unless contraindicated by the condition of the patient. The mortality of appendicitis with abscess of the pelvis is considerably less than in those cases in which the appendix lies behind the cecum, pointing upward or to the median side of the cecum. The writer has seldom observed necrosis of the bowel in pelvic cases, and consequently sepsis from absorption through the bowel wall and fistula are of less frequent occurrence.

The Treatment of Uterine Fibromata.—After going into the etiology of uterine fibromata and their symptomatology, MANGIN (*Gaz. de Gyn.*, March 1 and 15, 1903) summarizes his methods of treatment as follows: Small fibrous tumors do not give serious trouble, hence should be treated medically, but must be carefully watched. Large tumors in young women should most surely be removed. After the arrival of menopause, one should operate before trying medical treatment. If the nature of the tumor permits, one should employ conservative operations, morcelllement, ligature of the uterine arteries or castration. Radical operation should be employed if there should be degeneration of the organ, renal or cardiac accidents, hematoma, suppuration of the adnexæ or other grave complications.

Uterovaginal Tamponade; Its Obstetrical Uses.—The use of tampons inserted into the vagina for the control of hemorrhage is very old. They were mainly used to carry astringents, vinegar, etc., to the parts, says J. B. DE LEE (*Am. Jour. of Obstet.*, April, 1903). Leroux, in 1776 introduced the vaginal tampon, to carry astringents to the uterus. Wendelstedt recommended the uterine tampon in 1806, by means of iodoformized gauze for post-partum hemorrhage. The reasons for the gauze to stop hemorrhage are: the rough packing stimulates the uterus by contact. The gauze tampons are directly over the site of the hemorrhage, and the pressure mechanically stops the flow of blood. The gauze acts like a Mikulicz, and favors the clotting of the blood in its meshes, and the subjacent mucous membrane. The gauze fills up the empty uterus. It is a clinical fact that the uterus will not close down on itself sufficiently

to obliterate its cavity and to stop the hemorrhage. A blood-clot does not stop hemorrhage so well as gauze. The gauze lifts up the uterus and supports it, relieving it of its congestion, which it undergoes when it sags in the pelvis. The reestablishment does not stop the hemorrhage. The method is objectionable as it is unphysiological and increases the risk of sepsis. Air embolism is another possible result from the employment of uterine packing. Others hold that it is inefficient, and it has been claimed that operators use it when it is unnecessary, and, therefore obtain good results. The writer finds but little use for this measure in placenta previa. The tampon to induce labor is but one of the milder measures toward this end. The vaginal tampon is standard and useful in certain conditions occurring in abortion. The uterovaginal tamponade as a means of carrying medication to the parturient tract is employed by some accoucheurs. The writer believes this field of usefulness to be very restricted; indeed, that the procedure is capable of much harm. Constant manipulation of an infected uterus, as by douches, curettage, medicinal applications, packing, etc., only aggravates the infection and carries the poison farther, while at the same time the actual local benefit derived is lost to the spread of the disease to inaccessible regions.

Pregnancy Following Nephrectomy.—Although nephrectomy is such a frequent operation, only three cases have been reported in which pregnancy followed the operation. Two further cases are now reported by J. F. BALDWIN (*Cleveland Med. Jour.*, May, 1903). In one case the kidney was removed for hydronephrosis and in the other for a pyelitis. Normal pregnancy followed in both cases and the convalescence was uneventful. While numerically insufficient to form a basis for generalization, these five cases would seem to indicate that the prognosis of pregnancy following nephrectomy is by no means unfavorable.

Bathing During the Menstrual Period.—Considerable attention has lately been paid to this subject, the trend of modern opinion seeming to depart from the old, accepted idea that bathing during the menstrual period is harmful. A careful study of the effects of baths has been made by R. FISCHL (*Prager Med. Woch.*, May 7, 1903), who employed them in a series of 24 cases with comparatively normal menstrual histories. It was found that the lukewarm fresh water bath could be taken with impunity in normal cases. Salt water baths are to be avoided in the beginning of menstruation but need not be stopped if taken in the course of a "cure." In certain cases, the deposit of the minute crystals of salt and other mineral substance remaining on the skin, may set up a reflex irritation which may have an effect secondarily inhibiting or influencing the menstrual function.

Constipation as a Factor in Eclampsia.—No one will doubt the close relation between renal and intestinal diseases (JOHN ASHILL, *Am. Jour. Obstet.*, April, 1903), not those intestinal diseases where there is structural change, organic diseases, but where there are chemical changes occasioned by malassimilation or a disturbance of digestion by miscellaneous indigestible articles of foodstuffs; again, in adults whose sole complaint is constipation, the gradual appearance of albumin is noticed if the intestinal chemical changes are not rectified. How this condition is brought about is not yet explained. Whether it is due to disturbed metabolism, toxemia, or destructive cell-masses that are carried from the intestine by the blood and deposited in the liver, producing areas of necrosis and further finding their way to the kidneys, producing a destruction of the parenchyma, is more than we can at present explain. Certain it is that pregnant women are capricious in their appetites and

indulge in foodstuffs that they would never crave were they not pregnant. The majority of the author's cases occurred in winter when the skin was inactive and the waste products of metabolism were not excreted because of the dermal inactivity. During January and the early part of February a year ago in the New York Foundling Hospital, the examination of the urine of the women in the waiting wards showed in about five-sixths of the number the presence of albumin, ranging between a very faint trace and abundant quantity, with a lowered specific gravity; in some cases running as low as 1.004 and 1.010 and occasionally 1.001. There were from 30 to 40 women in waiting and practically all were primigravidae. In addition to the presence of albumin, one-fourth showed signs of toxic symptoms; headache, nausea and vomiting, edema of the legs and increased arterial tension. There was no striking reason why five-sixths of the waiting women should have albumin and so many others show toxic symptoms. The ordinary routine for each patient—diet, baths, exercise, recreation, clothing, etc.—apparently existed as in previous months. The presence of constipation was, however, well marked, but whether the women were more unfortunate in this regard than the preceding inmates, could not be said. Several of these patients were taken with eclampsia and were treated by catharsis alone and the greater proportion recovered without any alarming symptoms. In fact, only one death was recorded, and this was due to a sudden heart collapse. Another interesting feature in the production of eclampsia is shown in the history of two of the author's cases of the year preceding, when the eclamptic attacks were preceded by the ingestion of large quantities of "good things" which were received in Christmas boxes. The day following the eclamptic seizures came on.

Partial Symphyseotomy.—A procedure of considerable interest, which shows what a country practitioner may resort to in an emergency, is reported by DIEHL (Münch. med. Woch., April 7, 1903). He was called to see a patient who had been in labor for some hours. The pelvis was very narrow and the fetal head was firmly impacted, so that version was impossible and the application of the forceps was without effect. Cephalotripsy was then done but it was found impossible to extract the head even with the cranioclast, because, as was found later, the bones of the skull were very hard and the sutures united. The cutting through of the upper half of the symphysis was then resorted to. The author states that the delivery was completed without any further trouble. The usual after-effects are thus avoided and the patient in this case was out of bed in three weeks.

Management of Occipitoposterior Positions of the Presenting Head.—Posterior positions of the occiput almost always right themselves, even when left to nature and the management should consist in properly understanding and facilitating nature's methods. W. J. CAVANAGH (N. Y. Med. Jour., April 11, 1903) points out that this rectification on the part of nature depends, however, upon a proper flexion of the head so that when the occiput strikes the pelvic floor it will be the most advanced presenting part and will be rotated by the forces around to the front. If the case is seen early before the membranes have ruptured it is frequently possible to avoid any dangers by a preliminary rotation of the head, which may be effected by having the woman assume the true genupectoral position and retain it as long as her strength permits or until vaginal examinations without change of position show that rotation has taken place. Should the occiput, after becoming anterior, show a tendency to return to its posterior position, rupture the membranes to hasten engagement of the

head. If this is unsuccessful no hesitation should be felt in allowing nature to take her course in these early cases. The degree of flexion should then be watched and if not satisfactory, firm resistance, not pressure, should be made upon the sinciput to prevent any further advance and the actual flexion of the head should be left to the pressure exercised on the occipital end by the uterine forces. If the case is not seen till labor has so far advanced that simple pressure is of no avail one of two methods may be employed: (1) Anesthetize fully, pass hand into vagina; push the head gently up out of the pelvis, above the superior strait, then flex it and rotate the occiput forward, holding it in position till the pains aided by pressure from without cause an engagement of the head. (2) Delivery by the forceps reversed. This is not a difficult procedure. The blades should be introduced so that the cephalic curve passes over the ears, with convexity forward and the tips rest upon the occiput. When traction is made, which should be gentle and with one hand, the occiput is naturally drawn down, the head tilting on its attachment to the spinal column, yields to the leverage thus applied, and, the frontal end being forced up, flexion is at once established and the occiput becomes the lowest part. Forceps should then be removed and, if necessary, to complete delivery they should be applied in the normal method. Rotation will almost always occur if good flexion is obtained even though the head is very low. Sometimes when flexion seems impossible a more safe and speedy result may be obtained by causing complete extension of the head thus converting a brow presentation into the most favorable variety of face presentation, viz., that in which the chin presents under the pubic arch.

Comparative Investigations of the Blood and Amniotic Fluid of the Mother and Fetus.—The physiological processes which take place between mother and child during pregnancy are still in a large part unexplained. Some of these problems are considered in a series of investigations lately made by W. ZANGEMEISTER and T. MEISSL (Münch. med. Woch., April 21, 1903) and include the determination of the red blood cells in both mother and child, the lowering of the freezing point of both sera and the amniotic fluid, and finally the specific gravity, the chlorine content, and the total quantity of albumin. The following facts were determined: The number of red cells is relatively greater in the child than in the mother; the blood of the child does not coagulate so readily as that of the mother, nor as completely, so that it was often difficult after twenty-four hours to obtain enough serum for the tests; the serum of the mother contained as a general thing, a larger amount of albumin than that of the child, but the specific gravity and the total oxygen content of the serum of the mother was always greater than that of the child; the quantity of chlorides is about the same in both individuals; the average freezing point of both sera is approximately the same, which means that the blood of infant and mother are under the same conditions of osmotic pressure. As regards the liquor amnii, it was found that the specific gravity and amount of albumin varied under normal conditions, within very small limits. The quantities seemed to be less in the amniotic fluid than in the blood. The lowering of the freezing point is always less in the liquor amnii than in the blood and this is probably one of the most marked differences between the two.

Statistical Review of Cases of Albuminuria and Eclampsia.—A résumé of the cases of albuminuria and eclampsia occurring during a period of thirteen years in the Maternity Hospital of the University of Pennsylvania, is published by J. C. HIRST (Am. Med., May 2, 1903). During this time there were 122 cases

of the former, and 48 of the latter. He believes that albuminuria is the most reliable indication of kidney insufficiency, and the quantitative examination of urea, while interesting, is not valuable in this capacity. He considers fallacious the statement that if the amount of urea falls below one per cent., the woman is in danger. Cases are quoted where the percentage of urea varied from .3 per cent. to 2.8 per cent., and the total quantity excreted from 2.5 to 36 grams a day, yet the patients were in perfect health without any signs of toxemia. For the mild cases a simple eliminative treatment was given. The more obstinate cases are purged with magnesium sulphate and hot air baths or packs given every four hours for thirty minutes at a time. This treatment usually brings on labor in most cases. If not, or if the symptoms do not show decided improvement within 48 hours, induction of labor is indicated and performed by de Ribes bags or Krause's flexible bougies. Under this treatment only eight cases, or 6.5 per cent., developed eclampsia. Of a total of 48 cases of eclampsia, 15 died, or 31.2 per cent.—ten of which were practically moribund when brought into the hospital. Of the full term children, the mortality was 39.5 per cent. In about one-half the cases the convulsions were present before labor and ceased directly after delivery. His treatment of the convulsions includes the use of chloroform, purgation by Epsom salts if the patient can swallow, if not, two drops of croton oil placed on the tongue. If the pulse is full and bounding, *veratrum viride*, m. 15, is given per hypo, and repeated in 5 m. doses every two hours until the pulse softens. Hypodermoclysis under the breasts every four hours alternated with the hot packs. The uterus should be promptly evacuated and for this purpose the author has lately employed the Bossi dilator with good results and much less shock to the patient. If the os is wide open forceps may be applied. After delivery the treatment is kept up until the patient is passing large quantities of urine, and is then gradually relaxed. Eleven of the cases developed convulsions after labor, and of these seven died, a high record of fatalities.

Extra-uterine Pregnancy.—Four interesting cases of extra-uterine pregnancy have been reported by LINGEN (*Prak. Vrach.*, No. 9, 1903). In the first one there was cessation of menstruation for 5½ weeks; hemorrhage; in eighteen days—pain and symptoms of acute anemia. Uterus soft; to the right and back there is felt soft resistance. Collapse in three days. Cesarean section; hematocele, tubular pregnancy. Recovery. (2) Menstruation absent for seven weeks; pain. Uterus enlarged; on the right to the back there could be felt a soft swelling the size of a fetal head; decidual membrane thrown off by the uterus. Cesarean section; the right tube dilated and presenting a hematocele; the left a hematosalpinx. Both tubes removed. Recovery. (3) Periods two weeks late. To the right of the womb a large soft swelling, which did not diminish in size during some time. Cesarean section. In taking up the tube (thinned out and considerably dilated) it ruptured and there appeared a coagulum. Both tubes, as well as a subserous myoma were removed. Result of operation not stated. (4) Patient had already been operated on for an extra-uterine pregnancy. Now had no menstruation during four months. To the right of the uterus a swelling the size of a child's head. On Cesarean section this swelling ruptured and the amniotic fluid gushed out. The right tube was found to be the seat of the fetus. Recovery.

Hysterectomy in Puerperal Infections.—The indications for hysterectomy in puerperal infections are reviewed by H. DUKER (*Jour. des Sci. Méd. de Lille*, April 4 and 11, 1903) who divides puerperal septicemias

into those in which local uterine, peri-uterine or adnexial lesions exist and those in which no local lesion is apparent. The former he believes are to be treated by uterine disinfection, curettage, ablation of adnexa or hysterectomy. The latter class he subdivides into acute and chronic. Among the first, cases are seen in which septicemia is due to placental infection, which he holds may not be overcome by curettage; the sole effectual measure being abdominal or vaginal hysterectomy. In other acute cases the gravity of the condition seems to depend upon the excessive virulence of the microbic agent; in which case it is doubtful if ablation of the uterus would prove advantageous; especially if injections of artificial serum fail of effect. The chronic septicemias he considers the result of uterine or peri-uterine phlebitis or lymphangitis or of some unrecognized foci. In these cases there may be multiple foci within the uterine parenchyma or in the efferent or afferent vessels. To this group is given the name of puerperal uterine pyemia. In this class of cases septicemic symptoms generally appear shortly after parturition and are of prolonged duration. Hysterectomy may be of service under such circumstances provided it is not too long deferred. In all cases of septicemia, the author holds that the most helpful measure is found in massive subcutaneous or intravenous injections of artificial serum, either as a curative measure or as a coadjutant to more radical treatment.

MEDICINE.

Gastric Sensations.—The various sensations experienced by certain persons and attributed by them to the presence of live animals in the stomach, have usually been ridiculed and looked upon as delusions. ALFRED STENGEL (*Univ. Penn. Med. Bull.*, May, 1903) finds, however, from his own experience that there is often an anatomical basis for the patient's supposition that he is harboring some living thing in his stomach. In one case the patient complained of the sensation of a snake in his stomach. Examination gave evidences of a gastritis of a pronounced grade, with dilatation. An autopsy some time later showed the mucosa of the stomach thickened and had given origin to several long polypoid growths. In another case the patient improved under appropriate treatment. The author is convinced that many of such cases are in reality gastric disease and should not be looked upon as delusions but given the benefit of proper treatment.

Causative Factors of Obstipation.—By obstipation is meant difficult defecation due to mechanical obstruction, which resides in the rectal wall or some organ which impinges upon the rectal wall. A great deal of attention of late has been paid to organic causes of constipation, with the happy result that many of the most chronic cases have been completely cured. L. J. HIRSCHMAN (*Med. Rec.*, May 16, 1903) believes that enlarged rectal valves are a very important factor in causing obstipation and more frequent careful examinations of the rectum would disclose the presence of these mechanical obstacles. The enlarged prostate and misplaced pelvic organs are also efficient causes of obstipation at times but not so frequently as the rectal valves. The symptoms complained of are, of course, the inability to defecate properly or comfortably. There is the desire to go to stool but even after straining hard only a few hardened masses pass or a long ribbon-shaped stool with or without mucus. The ribbon-shaped stool is almost pathognomonic. There is usually an accompanying sense of fulness in the rectum and abdominal distention is common. Various symptoms due to auto-intoxication may follow. Proper diet, exercise, massage, water and out-of-door life are

beneficial to such cases but they cannot be curative and unless the obstruction is removed, more or less trouble must persist. A careful examination with a speculum will disclose hard, fibrous enlarged rectal valves whose section is necessary to relief. This operation may be easily done with or without general anesthesia, for the upper rectum is not well supplied with sensory nerves. With angular rectal scissors a V-shaped incision should be made down to the base of the offending valve and the intervening part removed. The cut edges are then crushed between the jaws of a valvotribe to prevent hemorrhage. The higher valves are then treated in the same manner. The rectum is then packed with sterile gauze through which a rubber tube for the passage of gas is inserted. This is removed at the end of one day and within a week the patient may usually resume his work.

Mixed Infections in Pulmonary Phthisis.—There are still very few practitioners who give sufficient consideration to the problem of a mixed infection in this disease, and differentiate among their patients, with a view to ascertaining the true condition and selecting the proper remedies and nutrition. From this standpoint, PAUL PAQUIN (Jour. Am. Med. Ass'n, May 16, 1903) has made a large number of observations with especial reference to the form of treatment demanded by the complicating bacterial invasion. He discusses very fully the microscopical appearances of a number of sputa, and finds the pneumococcus present in a fair proportion. He divides treatment into two parts, first the aerial, which includes climatology, pure or medicated air, and the artificial efforts to drive remedies directly down into the lungs; second, the circulatory, which means all the efforts to reach the lungs and influence the system generally by means of the blood and lymph circulation. This includes internal medicine, hypodermic injections and dietetics. In discussing nebulization he points out that it is only of value in selected cases, and has no effect when applied to consolidated tissues. Nebulæ are only of service when the lymphatics can be reached. It is not good practice to apply 40 to 80 pounds pressure to tuberculous throats, thus causing a hyperemia and possibly a rupture of the air-cells. The circulatory system insures the pulmonary distribution of certain drugs but the essential thing in all treatment is the proper food supply and the author dwells particularly on the value of the juice expressed from raw beef, at least 4 to 6 pounds being employed daily. The cacodylates and iodine are also worthy of trial.

Permanent Cure of Tic Douloureux.—Trousseau has said that he has never known a single case to be radically cured and it is the general opinion that a genuine case is one of the most obstinate conditions with which we come in contact. J. K. BAUDUY (St. Louis Med. Rev., May 2, 1903) has had excellent success with a line of treatment which he has pursued for some time and reports a case in which there is apparently a phenomenal cure. There are four factors in his method of procedure and each one is essential to success: (1) he uses potassium iodide in moderate doses over a considerable period and holds that this is peculiarly antagonistic to chronic neuralgias; (2) the administration of arsenic, which in all troubles of the nervous system with degenerative tendencies is an indispensable feature of successful therapeutics, especially when combined with iron; (3) the administration of large doses of strychnine. He gradually increases the dose, giving it by mouth, till the patient takes one-tenth of a grain three times daily for some time. (4) He makes a daily application to the painful parts of an hour's duration of a descending, anodic galvanic current, both inside the mouth and over the affected

cheek. The use of the glycerophosphates may be helpful to the above method of treatment. He has abandoned the use of aconitia as being too dangerous.

Treatment of Gastric and Duodenal Hemorrhages.

—Hemorrhages from the stomach and duodenum are due to disintegration of blood vessels in consequence of ulceration, seldom of erosions. The so-called capillary hemorrhages are the result of extreme congestion of the mucosa and occur, but very rarely, in vicarious menstruation, cirrhosis of the liver and sometimes from no apparent cause. M. EINHORN (N. Y. Med. Jour., May 2, 1903) mentions the following points in differentiating between gastric and duodenal hemorrhages. In the latter condition the pains come on about two or three hours after eating, there is considerable melena associating with hematemesis or existing alone, and the pains are often found in the right hypochondria region. The diagnosis between the two conditions can seldom be made positively. The treatment of such hemorrhages consists first in arresting the bleeding and then rectifying, so far as possible, the underlying cause. Absolute rest in bed, total abstinence from food and drink, and the administration of opiates, subcutaneously or per rectum, will serve to lessen peristalsis of the stomach and intestines and favor healing. Rectal alimentation and moderate amounts of saline solution per rectum or subcutaneously will supplement the amount of fluid required. Among the most useful remedies which may be used to check the hemorrhage, the local application of an ice-bag is the most rational agent that has been employed. Ergot may act by contracting the blood vessels. Among the later remedies suggested, two are of considerable importance and seem to have a direct and rational basis of action. Gelatin facilitates coagulation and can be employed by mouth or subcutaneously. In the latter instance a two-per-cent. solution may be used and 100 c.cm. injected at a time. When given by mouth the simple calf's foot jelly may be employed, but this method is more liable to produce peristalsis. The other remedy is adrenalin, and the author has made numerous experiments upon rabbits to demonstrate the value of the drug in arresting hemorrhages from the mucous membrane of the stomach. He has also employed it both subcutaneously and by mouth in several cases of gastric hemorrhage with apparently good results. Two surgical procedures are now made use of at times to arrest hemorrhage: (1) Finding the bleeding area and excising or cauterizing it; (2) performing a gastro-enterostomy. The indications for surgical interference are the following: (a) Very profuse hemorrhages occurring at frequent intervals demand immediate operation; (b) profuse gastric and especially duodenal hemorrhage occurring with more or less regularity requires an interval or prophylactic operation to avoid a return of the bleeding; (c) frequent small hemorrhages, which greatly debilitate the patient and cannot be stopped by rational therapeutics.

Post-Vaccinal Anemia of Infants.—A certain number of infants vaccinated by M. BELLOTTI (Gazz. Osped., May 10, 1903) developed a pallor of the skin and mucous membranes which persisted for months, though prior to vaccination the patients were of a healthy color and were free from disease. Though the author was not in a position to make a blood examination, he believes the changed appearance to be due to anemia induced by the introduction into the system of what he regards as an attenuated smallpox virus. Many observers having reported a diminution in the number of red blood corpuscles, together with a mononuclear hyperleucocytosis in variola, the author believes it not improbable that a like condition might occur after introduction of vaccinal lymph.

Acute Yellow Atrophy of Liver.—In a treatise on the subject of acute yellow atrophy of the liver, W. FERRIS and W. H. CLAYTON-GREENE (*Lancet*, May 2, 1903) draw the following conclusion: The theory already advanced by others that the condition is one of toxemia with resulting changes in the viscera is the one which most satisfactorily explains the clinical and pathological features, and the source of the toxemia is in all probability the intestinal tract. It is true that so far no lesions have been described there, but that detracts little from the value of the explanation, since it is quite possible for an infection of great magnitude to be started from a lesion so small as to be overlooked, as is the case in so-called "idiopathic tetanus." With regard to the pigment found post mortem, he thinks it is strongly suggestive of hemolytic action of the poison causing the disease. He does not think that a liver showing the amount of destruction that was shown in his case could have been capable of elaborating any pigment; nor was there sufficient iron present in the liver to warrant the assumption that the blood cells were destroyed there. The suggestion that the pigment had been stored up in the liver, and was set free with its destruction, is, he thinks, inadequate. Again, there is a close relation between the amount of pigment and the fatty change. Wherever the pigment was most thickly deposited, there the fatty change was most advanced. This, he thinks, allows of the suggestion being made that the pigment is a poisonous product of hemolysis, a combination of toxin and blood pigment capable of producing cell pigmentation and destruction in various parts of the body. A similar phenomenon has been observed by some American workers in relation with cirrhosis of the liver, pancreas, etc., and the term "hemo-chromatosis" has been applied to it. In those cases, as in this, the suggestion has been put forth that the pigment is poisonous. He would urge that the case, from a pathological and clinical standpoint, would support the view that the disease is not primarily hepatic in origin, the liver only suffering with other parts; that there is a hemic infection with micro-organisms or their toxins with subsequent hemolysis; that there is a combination of toxin and blood-pigment to form a poisonous compound which is injurious to the tissues and causes their discoloration; that the liver must be absolved from the charge of forming the pigment, but that it is formed in the blood vessels themselves; and that the source of the mischief must be looked for in some part of the alimentary canal.

GENITO-URINARY AND SKIN DISEASES.

The X-ray and Finsen Light in the Treatment of Lupus.—Both these agencies have already proven the wonderful beneficial results which may be derived from their application to superficial malignant growths and ulcerative processes, but it has not yet been thoroughly worked out which is the better and more effective method. A. D. ROCKWELL (*Med. Rec.*, April 11, 1903) raises the latter point and says that the actinic rays possess one great manifest advantage over the X-rays, namely, their more benign action. It is true that the light radiance may cause dermatitis and pigmentation, but this usually rapidly disappears. On the other hand the curative effects of the X-ray in lupus and other skin affections follow more rapidly than those of light, while with improved methods X-ray burns may become in time an almost negligible quantity. The two remedies differ not so much in kind as in degree—in the frequency and intensity of their vibrations. In a case of lupus of the chest the Finsen light was employed and improvements were noticed up to the fifteenth treatment but, thereafter, no further improvement was appreciable. Two weeks later treatment was begun with the X-rays,

resulting in complete recovery. He draws no conclusions from this case but suggests that each remedy may be found to have its special advantages depending, no doubt, largely upon individual peculiarities and susceptibility.

Treatment of Ringworm.—The difficulty of curing ringworm of the scalp or beard is thoroughly appreciated by all physicians for it is frequently a matter of several months even when the most persistent and painstaking care is taken. When it occurs upon a non-hairy portion of the skin almost any of the parasitides will effect a rapid cure. G. T. JACKSON (*Med. Rec.*, April 11, 1903) recommends the use of goose grease as a vehicle to which is added a dram or more of iodine crystals to the ounce of grease. This preparation is applied twice daily till it produces a reaction which will be evidenced by a little swelling of the patch. Then once a day will be sufficient. In two or three weeks the hair falls out of the patch and it becomes bald like a patch of alopecia areata. After a time the hair grows again and the case is cured. The first applications are liable to be a little painful for a few moments, but after that even children do not complain of discomfort. No epilation is necessary. If this remedy proves inefficient an ointment composed of from half a dram to a dram of croton oil to the ounce of sulphur ointment will be found curative by causing a dermatitis and converting the patch into a perfectly bald one.

Posterior Urethritis and Prostatitis.—The view is gradually gaining ground, especially among those urologists who emancipated themselves from the routine methods of treating chronic posterior urethritis, that there are cases so obstinate to every known therapeutic means as to properly be called incurable. ZARTZYN (*Pract. Vrach*, Nos. 14 and 15, 1903) regards the treatment under three heads: (1) Mechanical, (2) thermic, and (3) drugs. Of the mechanical means the most important is massage of the prostate per rectum, subjecting to this only the affected portion of the gland. As a criterion of the effectiveness of this procedure he regards the rapidity with which the thickened part empties its contents: The massage should never last over three minutes. Mechanically, the introduction per urethram of gradually larger sizes of sounds, or, if such be used, of psychrophores. However, the author does not seem to have obtained any specially favorable results from either, and even thinks that frequent dilatation of the urethral sphincter tends to weaken it. As regards drugs, the best results are to be expected from silver nitrate and sulphate of copper (the latter introduced by finger); either of the two is introduced into the urethra in the form of Tommasoli's salve of the following formula:

Silv. nitr.....	0.4
Lanolin (sterilized).....	16.0
Sterilized olive oil (best).....	4.0

It is most important to see that the salve be thoroughly sterilized. If this salve cannot be expressed through Tommasoli's syringe its consistence is softened, thus:

Lanolin anhydric steriliz.	
Aq. distil. ster. aa.....	10.0
Arg. nitr.	0.4

Ung.

The treatment is begun with this salve, which is later on replaced by one made of sulphate of copper, from one per cent. up to five to ten per cent. Suppositories are also introduced per rectum, of which Finger's is the most frequently employed:

Iodi puri.....	0.06
Pot. iodi.....	0.6
Extr. bellad.	0.15
Olei cacao q. s.	

Ut ft. supp. No. 10.

To avoid straining often consequent upon the introduction of such suppositories, two per cent. cocaine is added to them. Thermically Winternitz's psychrophores, warm or cool rectal injections, rectal psychro- and thermophores are all of undoubted utility, only in acute and recent cases. It may be stated in a general way that chronic gonorrhea prostaticitis is quite a frequent disease without a definite symptomatology. In all cases of chronic urethritis the prostate should be examined. As the means at our disposal do not enable us to guarantee a positive cure, some more effective methods of treatment should be looked for; of these it is possible that injections of some remedial agencies into the parenchyma of the gland may in the future be adopted with success.

EYE, EAR, NOSE, AND THROAT.

Affections of the Eyes in Scarlet Fever.—The eyes are usually rather rarely affected in scarlet fever. STRGEMINSKY (Nowiny Ckarskie, April, 1903) presents a rather interesting account of 7 cases in which the various structures of the eyes were attacked in the course of scarlatina, during an epidemic of the same. In a nine-year-old patient, who was seen at the period of desquamation, there was observed on the left cornea above the middle line an ulcer with rough smaller edges and pus at the bottom. The rest of the cornea was opaque, and the pupil contracted. Treatment: Application of 50 per cent. solution of lactic acid, atropine, some iodoform and a warm compress. Recovery within twelve days. In one case of scarlet fever complicated with diphtheria there occurred paralysis of accommodation and a condition of micropsia. Strengthening treatment, subcutaneous injections of strychnine and electricity with the interrupted current brought about complete recovery within three weeks. In another case there was diphtheritic conjunctivitis with purulent infiltration of the entire cornea; result: atrophy of the eye.

Trachoma.—Trachoma has finally drawn to itself the attention not only of the specialist but also of the sanitarian. It is, however, very important to distinguish trachoma from follicular conjunctivitis. VELIANOVICH (Prakt. Vrach, No. 13, 1903) points out the difference between the two affections as follows: (1) The transparent granules (swollen normal follicles) are to be seen in both affections; but what distinguishes trachoma from follicular conjunctivitis is the fact that alongside with these transparent granules there are also seen deeply situated dense granules, lymphoid new formations. (2) Trachoma affects primarily the folds of both the upper and the lower lids, whereas in follicular conjunctivitis the granular process is localized almost exclusively in the lower lid, preferably at the angles and the tarsus. (3) The trachoma granules tend to become cicatricial tissue, whereas this is never the case with follicular conjunctivitis, in which restitution ad integrum is the rule. (4) If untreated, trachoma may last for years, while conjunctivitis follicularis under some conditions will be cured of itself in from five weeks to several months. (5) We find in trachoma very pronounced pathological alterations of the entire conjunctiva (hypertrophy of the glands, lymphoid infiltration and new formations in the dense granules), while in follicular conjunctivitis all the changes are limited to swelling of the normal follicles and to the various phenomena accompanying an ordinary conjunctival catarrh. (6) Finally, perfectly competent and trustworthy authorities point to localities where follicular conjunctivitis is prevalent and trachoma entirely unknown, which fact is a direct indication of the etiological difference between the two affections.

THERAPEUTICS.

Alcohol in Therapeutics.—Notwithstanding the great importance of the subject, we possess as yet no definite data regarding the action of alcohol as a therapeutic agent. Some authors as Petit, Pinel and others (Revista Critica, No. 7, 1903) have attributed a great deal of benefit to its use therapeutically while many others equally eminent deny its employment in disease. However, it is established beyond any doubt clinically that moderate doses of alcohol act as a cardiovascular, nervous stimulant and as a heat-generating agent. Brunton has long ago proved that alcohol is especially indicated in the postfebrile collapse of typhoid fever. The mechanism of the action of alcohol in pneumonia, and, in a general way, in the various infectious diseases of an adynamic character is quite simple; thus in pneumonia we have an exudate in the alveoli, the disappearance of which indicates convalescence from the disease; but in order that absorption of the exudate may take place there is called for an unavoidable expenditure of nervous force as well as of blood; and it thus becomes necessary to supply the organism with a food which, while easily absorbable, is at the same time potent to sustain the nervous force and to maintain animal heat. No other ailment is capable of meeting these requirements in a way as is the case with alcohol which, while exercising its special effect on the nervous system, at the same time combines with the oxygen of the tissues, thus furnishing heat for the maintenance of the animal temperature. In the febrile states alimentation is insufficient to supply the 2,500 calories necessary to the existence of an ordinary individual of medium weight, and the latter is therefore compelled to draw gradually on his exhausted organism. Alcohol furnishes for each gram 7 calories and its combustion is the more rapid and complete the higher the fever; it thus represents, in an eminent manner, a "saving" medicament.

Compresses Saturated with Alcohol are Comparatively Unknown Here.—Salzwedel has used them with success in many cases and KOLBASSENKO (Prakt. Vrach, No. 9, 1903) has collected an enormous material extending over five years, from which he draws the conclusion as to the undoubted utility of such compresses as pain-stilling agents. The compress is made as follows: 6 to 8 layers of gauze are saturated with a 57 degree, 70 degree, 90 degree or 95 degree solution of alcohol; to the solution of the last strength some aromatic vinegar is usually added. The part is covered with the gauze over which oiled silk and the like is placed to prevent too rapid evaporation of the alcohol. To control the effect of alcohol a weaker solution is resorted to, and if the skin be very tender, or if there be a wounded surface, the part is first powdered over with xeroform, or smeared with a salve of xeroform (one part), vaseline and lanoline (20 parts). The compresses are sometimes employed during a period of several days; in such cases they must be used at certain intervals, not uninterruptedly. The analgesic effect of the compress extends deeper than the superficies of the skin, thus it has been used often in perimetritis and deeply situated cervical glands, etc. Besides this effect the author has found the compress as a very important means in breaking up or in limiting a beginning suppuration. Used in carbuncles it caused the immediate disappearance of pain, while the purulent and gangrenous processes were held very much in abeyance. As the skin is usually very sensitive in such cases it must be protected from irritation caused by the alcohol by the above-named powder or salol.

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SATURDAY, JUNE 20, 1903.

THE CANCER AND VARIOLA PARASITES.

THE discovery of an intranuclear cycle of the variola parasite, by Professor Councilman of Harvard University, and the impetus which his observations will now undoubtedly give to the search for protozoa in other diseases, call to mind a suggestion which has been made in other quarters that the organisms of variola and cancer are closely related.

It will be remembered that Gaylord in his recent work on cancer, and Bosc, in an article in the *Archives de Médecine Expérimentale et d'Anatomie Pathologique*, advanced the idea that cancer and variola and sheep-pox (Bosc) were all sporozoan diseases and would have to be considered as a group. In this connection the recent publication of Borrel in the *Annales de l'Institut Pasteur*, Vol. XVII, No. 2, entitled "Épithélioses infectieuses et Épithéliomas" is of especial interest.

This author arrives at the conclusion that variola, sheep-pox and cancer are diseases with similar etiology. He believes that the etiological factor in these infections, however, is as yet undiscovered and scouts the possibility of protozoa having anything to do with them. He is particularly hard on the variola parasite, especially the vaccine body, which he says Sikorsky has re-

cently produced artificially. So far as cancer is concerned, Borrel adds an observation of great interest. He states that a certain breeder of white mice in Paris, who furnishes large numbers of these animals for experimental purposes, possesses a cage, a large percentage of the mice from which develop a type of epithelioma which forms metastases. Inasmuch as mice are frequently introduced into this cage, heredity has nothing to do with the phenomenon. Carcinoma has never been known to develop in the mice reared in other cages, and Borrel concludes that this observation alone is enough to prove the infectious nature of carcinoma. The tumor in question can be transplanted and contains large numbers of the inclusions which are viewed as parasitic by various observers. On the basis of these observations Borrel arrives at the conclusion that although it is highly improbable that a protozoon has anything to do with these various diseases, cancer must be looked upon as infectious, and that we are justified in assuming the existence of a cancer virus in the sense that we apply this term to vaccine.

Although Councilman has not recently publicly expressed his opinion, it is generally understood that he believes that the organism of variola has absolutely no relation to the cancer problem, and it is interesting to note the opinion of a man of such influence as Borrel, who, not believing in the possibility of a protozoon parasite, so strongly endorses the analogy between these infections, previously drawn by Gaylord and Bosc.

PETTY-MINDED MEDICAL MEN?

THE *Literary Digest* of May 23, in its review of a book, makes the following statement:

"For the rest, that portion of the story which shows the insanity of prejudice to which the mob resort in its revolt against the new cult, and the ignoble part played by petty-minded medical men whose real fear is the depletion of their own incomes—all this is very well done and very little exaggerated—as our daily papers amply prove."

It sometimes happens that those who wish to oppose the enacting of a sanitary law, will try to excite opposition by claiming that the doctors favor it for selfish reasons. The laws for compulsory vaccination, for the physical examination of school-children, for the regulation of the practice of medicine, and many others, have had the charge made against them that they were intended to protect and to increase the incomes of physicians. Such accusations, however, are so

evidently false, that they have never been seriously considered.

Therefore it passes our comprehension how a periodical, of the class of the *Literary Digest*, has allowed itself to endorse such an erroneous idea. There are, indeed, few medical men who play an ignoble part in private or public life for the sake of their incomes.

Our daily papers, far from proving, do not even offer any evidence of "the ignoble part played, etc.," unless it be in the advertising columns.

If there were medical men who would oppose any method or means of curing the sick or preventing disease, they would certainly be heard from in the attempts being made to eradicate malaria from infected districts. During the summer months, from thirty to sixty per cent. of the practice of many physicians consists of malarial cases, and yet Mr. Henry Clay Weeks, the engineer in economics who is so active in the anti-mosquito crusade, is emphatic in his praises for the disinterestedness and willing assistance displayed by every doctor with whom he has come in contact.

Mr. Weeks also related the fact recently, that in one district the business men managed to suppress from publication the reports he had received from the physicians, the entomologists and the engineers—and that, too, after it had been set up in galley form—because they feared its effect upon the real estate market.

Some medical men are doubtless petty-minded, and there are many, too, who play ignoble parts, but it can not be truthfully asserted that the cause of any of their actions toward the protection and care of the public health, is excited by a real fear of the depletion of their incomes.

EARLY DIAGNOSIS OF OSTEOMYELITIS.

It has been well said, and often, that what the practitioner of medicine wants to guide him in the rational care of a patient suffering from this disease in its dread acute form is not methods of treatment but of recognition.

As was noted in recent issues of the *MEDICAL NEWS* the subject of osteomyelitis provoked a very active discussion in the Section of Surgery at the New Orleans meeting of the American Medical Association. Dr. De Forest Willard said that every case of acute osteomyelitis should be treated as energetically as any appendicular inflammation or indeed as any gathering of pus

within the body. He said if we could only cut out of our nomenclature and minds that bugbear of modern medicine, that wretched apology that cloaks the ignorance of so many of us, which kills and maims many helpless children as well as men and women, that "*rheumatism*," so easy to diagnose as such and to treat with a purge and a liniment; many lives would be saved. Dr. Stewart, of Minnesota, cordially agrees with Dr. Willard and would add to rheumatism, typhoid.

Dr. J. B. Murphy, of Chicago, believes that there are certain very positive indications that should enable every intelligent practitioner to differentiate acute osteomyelitis from acute rheumatism within the first forty-eight hours. Foremost among these are the presence in the former of agonizing pain following deep pressure over one spot for at least two minutes; the absence of effusion into the joint; the absence of local edema, and the presence of marked temperature. Since the infection takes place almost invariably on the shaft side close to the epiphyseal line, which, indeed, is the barrier guarding the joint, it is evident that as the process progresses it must migrate toward the center of the bone until sufficient pressure is encountered to cause the pus to burst through. This path is usually along the line of a Haversian canal to a distribution beneath the periosteum. It was taught by Sayre that until this event happened the child would have night cries or "terrors," and probably there is no better symptom indicative of pressure within the bone. Sometimes percussion over the suspected area will elicit pain where other methods fail. This technic is always used by the dentists when they suspect an abscess in the alveolar tissue at the root of a tooth.

From typhoid the differentiation of acute osteomyelitis is not always easy and error can be forgiven more readily than in the case of acute rheumatism. This is accounted for by the fact that in these rare conditions the patient is so overwhelmed by the virulence of the toxins, which are well known to become much more poisonous when subjected to pressure, that no time is given to profit by the expression of that most valuable of indicators, pain. The patient gives no response to percussion or to pressure. For diagnosis in these most difficult cases reliance must be placed on inspection and upon the presence or absence of high temperature and leucocytosis. It will thus be seen that here as elsewhere pain is an invaluable aid in the differential diagnosis of these diseases.

UNCINARIASIS.

It is most gratifying to note the interest with which the medical world at large is devoting itself to the study of animal parasitology. Of late many journal articles have appeared dealing with this subject, evidencing the fact that practitioners are realizing the importance of a more thorough knowledge in this long-neglected branch of medical diseases. Why this lethargy has existed is inexplicable, but the fact remains that we have only just awakened to the realization of the importance of this subject. The average practitioner frankly confesses that he knows almost nothing of the animal parasites that infest the human organism.

A paper read before the Johns Hopkins Medical Society, January 19, of this year, makes us marvel that we have so long permitted the widespread prevalence of uncinariasis in our Southern States to escape our notice. Through the permission of the Federal Government, a commission was sent out from the Bureau of Animal Industry to investigate the statement made by the chief of the Bureau in regard to the general infection of the inhabitants of this portion of the country by the *Uncinaria duodenale*. The seemingly sweeping statements were more than justified by the results obtained by the commission's work.

The investigators started their search for the parasites at the Richmond Penitentiary, where four days were spent in the examination of the intestinal discharges of the inmates, but not a single case of this variety of infection was found. However, at one of the copper mines of South Carolina the first case was met with and from this point southward, throughout the mining district, a large number of typical cases was discovered.

The interesting fact was brought to light that the inhabitants of the low-lying sandy regions were infected with the hookworm, while people living in clay lands were found to be free from the disease. Among the children employed at the cotton mills of Macon, Georgia, only those who came from the sandy districts were affected by the worm, and their condition was almost entirely cured after they had been at work in the mills for some time. According to the report of the Commission, the experts became so proficient that after a short time it was possible to pick out the infected individuals by the general appearance alone. In a large orphan asylum, which was visited, the children were lined up in two rows and by merely walking down through the lines it was

possible to detect the "suspects," and by an examination of their stools to confirm the diagnosis.

It was found that miners, farmers, brickmakers and children were those most often affected. Twenty-four hours of freezing weather is stated to be sufficient to destroy the eggs and larvae of the parasite. The disease was less prevalent in the winter than in the summer months. Children that had been infected with the worm were markedly checked in their growth, so that in many instances young women of twenty would have but the development of children of twelve or fourteen years. The sexual organs seemed to suffer the most in this retardation.

Contrary to what might be expected, uncinariasis was more prevalent in the rural districts than in the more densely populated regions. As a method of prophylaxis the Commission advised that the feces be covered with oil and then burned, as there are no means of filtering the water in those portions of the country where the parasite abounds.

At the recent meeting of the American Medical Association, held in New Orleans, the whole subject of uncinariasis was rehearsed and many most interesting points in the diagnosis, treatment and clinical manifestations of the disease were brought out by physicians residing in the Southern States.

Up to the present medical parasitology has been neglected in the medical schools, a possible lecture or two being considered all that was necessary to make the student thoroughly conversant with the matter. Sooner or later, there should be added to the curricula of all our medical schools a definite course in animal parasitology, and we may then look for a true appreciation of the importance of this branch of medical instruction.

ECHOES AND NEWS.**NEW YORK.**

Dogs Must Go Muzzled.—Another week's respite to unmuzzled dogs was granted by the Aldermen Tuesday. It will be only for a week, however, because at next Tuesday's meeting of the board an ordinance will be passed which will provide for the impounding of all dogs running loose in the streets unmuzzled. President Haines, of the Bergh Society, has reconsidered his refusal and has consented to undertake the work of catching the unmuzzled dogs. An ordinance is to be drawn naming the Bergh Society, instead of the police, as the officials upon whom the city will depend for the carrying out of the regulation. This amended ordinance will come up next Tuesday and will pass with practically no opposition. It will be necessary for the Bergh Society to increase its staff of dog catchers. The Board of Estimate will be asked to make an appropriation

sufficient to meet the pay of the extra men. As an offset to this the \$3 fine which will be imposed on owners who allow their dogs to run the streets without a muzzle will be paid into the city's general fund.

East Side Physicians Club.—At a mass meeting of the physicians held under the auspices of the East Side Physicians Club, June 12, 1903, Dr. Julius Solow presiding, the following resolutions were unanimously adopted:

Whereas, a number of physicians practising on the East Side of the Borough of Manhattan have been arrested on warrants in criminal proceedings instituted by the Commissioner of the Health Department without previous notice, warning or opportunity to present their defense of alleged charges of larceny in accordance with the best traditions of the Health Department, and

Whereas, this hasty, unwarranted and unprecedented aggressive action of the Department may tend to alienate the rank and file of the profession from their natural union and cooperation with the said Department, and

Whereas, the medical profession of this city as a unit has always stood ready to serve the Department of Health without fee or favor, be it

Resolved, that the physicians of the East Side in mass meeting assembled, deplore the circumstances and emphatically protest against the unmerited and summary procedure of the Department of Health, a procedure which demoralizes the community, offends the profession and gravely injures the accused physicians and their families by branding them as common criminals, and be it further

Resolved, that a copy of these resolutions be forwarded to His Honor, the Mayor of this City, to the Commissioner of the Health Department, and to the press.—Dr. Julius Solow, President East Side Physicians Club; Dr. I. Wm. Schapiro, Secretary.

The Death of Dr. Love.—Just as we are going to press reports have been received announcing the death of Dr. I. N. Love, the well-known editor of the *Medical Mirror*. Dr. Love has been in Europe and was on his return journey and was expected to arrive Thursday morning on the Cunard Line. Wednesday he is thought to have had a severe heart attack from which he did not rally.

The death of Dr. Love removes from the ranks of American Medical Journalism one of its most conspicuous members. While Dr. Love's columns were distinctly breezy and at times somewhat extreme, there was a hearty, hale fellow well met attitude that endeared him to many. For many years Dr. Love resided in St. Louis, but about two years ago removed his journal plant and office to New York City, in which city he was building up a comfortable practice.

For many years Dr. Love was an active member of the American Medical Association and he took much interest in the healthy growth of this Association, and it has been due largely to his generous support of the Association that a number of the Western States came into line. Dr. Love was also very active in his own native State Society. For a number of years he was affiliated with the Association of Medical Editors, which nondescript body has enjoyed a varying rise and fall in interest and influence.

PHILADELPHIA.

Veto of Bill Establishing Homeopathic Wards in Philadelphia Hospital.—Mayor Weaver has vetoed the bill recently passed by Councils authorizing the es-

tablishment of homeopathic wards in the Philadelphia Hospital. The Mayor stated that he was in sympathy with the thought that homeopathic physicians should have some part in the work of the hospital. The ordinance was not approved because it provided that the physicians and surgeons to be appointed should be nominated by the Hahnemann Medical College, thus transferring part of the executive power to one of the colleges.

Largest Dental Class Before State Board.—The largest class ever examined at one time by the State Dental Board came before that body June 11, when 186 applicants were examined in this city and 76 in Pittsburgh. They were nearly all the graduates of the five dental schools in Pennsylvania. One applicant was before the board for the sixth time.

Dr. Mitchell Deprecates College Football.—Dr. S. Weir Mitchell, in a letter written for the Class Record of the University of Pennsylvania Seniors contrasts his own with the present college days, with no edification of the latter. Among other things he says: "The change from that day to this has been great, but I am clear in my mind that in some respects you have lost out of the college life that which it were better to have kept. Our sports were less violent than yours. We had no football or races or contests with other universities, but we played cricket, and played it well, too, and rowed on the river and sparred with the once famous Tom Barrett. We had no game which necessitated the attendance of a physician. It is needless to insist on what we missed and what, in consequence, my generation failed to be and to do—it is sadly interesting to speculate on what we might have been—for by this time you must all be aware that without college athletics no nation can long survive. Who can doubt that the discipline of the football field must have been terribly missed at the 'Bloody Angle' and on Cemetery Hill. You, I fear, care too little for your intellectual athletes and certainly do not decorate or publicly honor them or portray them in your class records as you do the football teams. As I remember, we regarded our honor men with a certain veneration and took such interest in our society debates as I hope still exists within the sacred walls of my own Philomathean. It is rather late to say to a graduating class that athletics have to-day too large a place in the life and talk of college men, and that the intellectual athletes of your class, whom in the future years you will delight to honor, will owe nothing to the football field or the race track. Athletic sports are meant, as I see them, to insure that the body shall be made and kept sound, enduring sound, so as the better to enable men to meet the demand of our energetic life. A distinguished surgeon said to me last night that hundreds of men are to-day suffering, and will continue more and more to suffer, from the injuries received in football. If this be the result, are we not justified in asking that this attractive sport should be so modified as to free it from the unwholesome consequences which must affect the competency of many active lives?"

Schuylkill River to Be Inspected.—At the time this letter is being written, arrangements for a tour of inspection by the health authorities for the purpose of ascertaining the source of pollution of the Schuylkill River have been completed by Dr. A. C. Abbott, Chief of the Bureau of Health. Accompanied by six assistant medical inspectors and six nuisance inspectors, Dr. Abbott will enter a launch at Reading and inspect the river below that point. At each suspicious place an inspector will be put ashore to investigate, and later will be required to furnish a complete report of any source of pollution. A special survey is to be made of the river below Flat Rock Dam in order to determine

the extent to which Philadelphia sewage is contaminating the water supply of the city.

New Rules for Milk and Meat Inspection.—Mayor Weaver and Drs. Martin and Abbott recently met in conference representatives of the Milk Commission of the Philadelphia Pediatric Society and of the Keystone Veterinary Medical Association in order to discuss methods for improving the supply and inspection of the milk and meat used in this city. At that time a set of rules to govern the inspection of milk, approved by the Pediatric Society, were submitted. They were said by the authorities to be practicable, and will be enforced as soon as the Department is able to do so. The committee stated that the rules were not at all drastic, but that it was considered wise to begin with a comparatively low standard and elevate it as the dealers became accustomed to the changed methods. With the possibility of a Pasteurizing plant similar to the one endowed by Nathan Straus in New York in addition to improved sources of milk supply, the outlook for a diminished infant mortality is more bright than for many years. The rules submitted by the Pediatric Society are as follows: (1) That all milk sellers be required to obtain a license, to be granted free of charge; (2) that no license be issued unless the dealer is willing to state the source of his supply, and to give satisfactory evidence that the producer from whom he receives his milk maintains his herd and premises up to the standard prescribed by the Department of Public Health, the observance of such standards to be determined by periodic inspections under the directions of this same department; (3) that the standard to be established should correspond closely or exactly to the list of fifty dairy rules recommended by the Bureau of Animal Industry of the United States Department of Agriculture; (4) that dealers be required to remove all milk from the transporting trains immediately upon their arrival, unless in refrigerator cars, and to deliver the milk of the morning and previous evening on the day of its arrival, unless kept iced; (5) that dealers be required to have a special milk room so situated in relation to their houses as not to be a thoroughfare. That its walls shall be tiled or painted with a glazed paint; that its floors shall be made of hard wood, cement or other composition, or that they shall be covered with linoleum; that the room shall be well ventilated and kept thoroughly clean; (6) that it be required that all milk wagons be thoroughly cleansed after each delivery, and that they be so constructed that thorough cleansing is possible. That all utensils, such as dippers, etc., carried in milk wagons, when not in use, be kept in separate clean cans; (7) that no dealer or producer be permitted to deliver milk in bottles who has not on his premises satisfactory appliances for the proper cleansing and sterilization of bottles, and who does not properly use them; (8) that no dealer be permitted to fill bottles outside of his milk room. That dealers should be required to thoroughly cleanse and scald all milk cans before returning them to the producer.

CHICAGO.

Resignation of Dr. Christopher.—Dr. W. S. Christopher, formerly Professor of Pediatrics in the Medical Department of the University of Illinois, College of Physicians and Surgeons, has tendered his resignation.

Appropriation with Which to Combat Smallpox.—The Finance Committee of the Chicago City Council has recommended an emergency appropriation of \$10,000, to be used in fighting smallpox. At the present time, there are 39 patients with this disease at the isolation hospital.

The New Hospital Ordinance.—Under the provisions of the present ordinance dealing with hospitals,

no hospital of any kind has a right to exist on any block in the city without having first obtained the written consent of all the persons owning property in the block, and also of all on the side of the street opposite the hospital building. After long discussion, the City Council has passed an amendment to this ordinance, limiting its application to such hospitals as can properly be classified as nuisances, and making two further changes in it. The first of these changes concerns the kind of residence districts in which the ordinance is effective. Instead of allowing the right of veto by the property owners in every part of the city, it allows it only in cases in which a hospital is located in any block in which two-thirds of the building fronting on both sides of the street or streets on which the proposed hospital may front, are devoted to exclusive residence purposes. The other change concerns the requirements as to frontage consents, and reduces them from the unanimous consent of all of the property owners in the block and across the street to a consent of the majority of such property owners.

Congenital Dislocation of the Hip-Joint.—Dr. H. A. White, of St. Charles, Ill., reported a case of successful reduction of a congenitally dislocated hip in a female child, three years of age, before the Chicago Medical Society, June 10. Dr. White began by making direct extension with a few rotary movements. The force was applied gradually and lasted ten minutes. The contracture of the soft parts was next overcome, especially the adductor muscles. Adduction was carried to such an extent that the muscles were torn subcutaneously, using the hand as a wedge, until their prominences could not be seen. Extension was made in rectangular flexion of the thigh, and he tried to replace it by forced adduction. After a few trials, and with the aid of the wooden wedges, the head slipped over the cotyloid ring into the socket with quite a perceptible snap. The operation was performed October 28, 1902; the plaster cast was removed May 3, 1903, and the child walked in four weeks. One limb was then three-quarters of an inch longer than the other, but absorption had continued ever since, and the inequality was disappearing. The author is one of those who is heartily in favor of giving Lorenz the credit of having perfected and shown the most feasible method of reducing congenital dislocation of the hip. The little patient walked around the room for the benefit of the members of the Society. The result was excellent.

Fever Following Rat Bite.—Dr. Francis R. Sherwood reported before the Chicago Medical Society a case of rat bite in a boy, aged eight years. The rat had been caught in a trap the night before, taken to a vacant lot by some boys for the purpose of turning it loose and killing it, and when the rat escaped from the trap, it ran over the boy's left foot and bit it over the inner malleolus. The bite was through the stocking. The wound healed promptly and caused the boy no trouble. At the end of three weeks he complained of pain in the foot and leg, headache, loss of appetite, and fever, which was reported to have reached 105° F. The fever continued off and on for about nine weeks from the commencement of the symptoms, or twelve weeks from the injury. He stated that Dr. William A. Evans had made a very exhaustive study of the literature of the subject of rat bites. Evans had reported two cases which occurred in the practice of his father. Both ran a similar course to the case of the essayist, except one had a more continued high fever. Dr. Evans has succeeded in collecting all of the cases reported up to date, which is 64, two in European literature, 26 from American literature, and 36 reported by Miyake, of Japan. In his review of the cases, Evans thinks that the diagnosis was somewhat doubtful in about ten

cases. Many of the writers thought that there was a relation between the disease and rabies. In a number of the early cases, staphylococci and streptococci were found, probably due to secondary infections as the result of lancing and poultices. A few of the early cases died from this cause, and one from tetanus. The incubation period in most of the cases was from two days to four weeks. Miyake reports one as five to six hours, and another as four years. Miyake divides the disease into three forms: (1) Febrile form with exanthemata; (2) afebrile form, with mainly nervous symptoms; (3) abortive form, unimportant. The symptoms as given by Miyake are pain at the seat of the bite; fears; tired feeling; headache; dyspnea; small pulse; cold extremities; delirium; sensory and motor paralysis; collapse and death. The subacute variety has a well-marked incubation period, and most of the cases exanthemata, and lasts months or longer. The symptoms which Miyake gives in this form of the disease correspond very closely to those which the author found in his case, namely, re-inflammation of the wound; pain in the muscles, breasts and limbs; hoarseness; anorexia; nausea; vomiting; feeling of oppression; feeble pulse; cachexia; anesthesia of the extremities (not present in the author's case); hallucinations; decrease in urine secretions; exanthemata and urticaria. The pathology is not understood. Examination of the urine was negative in the author's case. The examination of the blood and inoculation experiments were also negative. The prognosis of the disease is good, apparently self-limiting. Treatment was symptomatic. Patient made a thorough recovery, and was exhibited to the Society.

Case of Elephantiasis Due to *Filaria Sanguinis Hominis Nocturnis*; Acquired Outside of Filial Region.—Dr. Mary M. S. Johnstone reported at the Chicago Medical Society, an interesting case of this disease, and exhibited the patient. The patient was a woman, sixty-eight years of age, who complained of dropsy. Her family history was negative. As a child, the patient had measles, mumps, chickenpox, and whooping-cough. Forty-five years ago she had brain fever; twenty years ago she had rheumatism in the right arm. When a young girl she had chlorosis, which was called at the time dropsy. The patient has had nine children. Her limbs always swelled during pregnancy. There is no specific history. The patient was born in Clinton County, N. Y.; she has lived in Milwaukee, St. Paul, and Mount Clemens. Forty-five years ago she lived in St. Louis, Mo., for one year, and after that, in the town of Mexico, Mo., for a month. While in St. Louis she drank river water which was very muddy, and even after filtering it was not clear. For the past thirteen years she has lived in Chicago. The swelling began in the left ankle in August, 1899; a year and a half later the right ankle and abdomen began to swell. The limbs were painful. The patient has indigestion and is troubled with constipation. At times, for twenty-one years, she has had a similar swelling of the legs, which has disappeared under treatment. She is rather despondent. The abdomen is bloated; there is a feeling of resistance and dulness on percussion over the left iliac and left lumbar regions. Some lymphatics in the hypogastric region are the size of a cord. The lower limbs are red, swollen, irregularly, pit on pressure; the skin is tense, shiny, rough and scaly. The clitoris and left labia major are enlarged and swollen. The urine examinations were negative. One blood smear taken at 9 P.M., fixed over fuming acetic acid, and stained with eosin, showed *Filaria*, $\frac{1}{100}$ by $\frac{1}{1000}$ inch. The pain and inflammation yielded to iugol solution, grt. v, t. i. d. The author says there are records of eight cases of filariasis which

have developed in the United States, north of the prescribed limits. Brief histories of these cases were given. The adult *Filaria* lives in the lymphatic system of man; the embryos are in the peripheral blood at night; by day in the lungs, heart and great vessels. The female mosquito takes the embryos with the blood. The larval form develops in the thoracic muscles of the mosquito in from seventeen to thirty days. The *Filaria*, freed in water at the death of the mosquito, after she has laid her eggs, enters man through the drinking water, or it is transmitted directly through the bite of the mosquito. Subjective symptoms occur only when the adult worm is disturbed. The embryos are the same diameter as a red blood corpuscle. If parturition is hastened, the ova, which are four or five times as broad, enter the circulation and produce an obstruction resulting in such troubles as chyluria and elephantiasis. The author believes that this case must have been acquired (1) either by living in a place where there was a person with filariasis and a mosquito capable of being intermediary host; (2) or directly through the bite of an infected mosquito, brought from a malarial region, probably with fruit. The only treatment is to kill the mosquitoes, filter and boil the drinking water.

GENERAL.

Chief of Division of Pharmacology.—The United States Civil Service Commission announces that it is desired to establish an eligible register for the position of chief of division of pharmacology, Public Health and Marine Hospital Service. No merely scholastic or clerical tests will be given, and competitors will not be required to be assembled for examination. The examination will consist of the subjects mentioned below, which will be weighted as follows: (1) Education and technical training, including post-graduate work, 20; (2) technical or professional experience, 40; (3) publications on pharmacology or similar subjects, 40, making a total of 100. It is desired to secure persons having broad training and experience along the lines of pharmacology who will be fully qualified to undertake the original investigations devolving upon the pharmacologist of the Public Health and Marine Hospital Service. It is expected that in the rating of the papers of this examination the assistance of persons eminent in medicine or pharmacology will be secured. Age limit, 20 years or over. From the eligibles resulting from this examination it is expected that certification will be made to the position of chief of division of pharmacology, Bureau of Public Health and Marine Hospital Service (male), at a salary of \$3,600 per annum, and to other similar vacancies as they may occur. This examination is open to all citizens of the United States who comply with the requirements. Competitors will be rated without regard to any consideration other than the qualifications shown in their examination papers, and eligibles will be certified strictly in accordance with the civil service law and rules. Persons who desire to compete should at once apply to the United States Civil Service Commission, Washington, D. C., for application Form 304 and special form, which should be properly executed and, with the material required, filed with the Commission at Washington prior to the hour of closing business on July 15. In applying for this examination the exact title as given at the head of this announcement should be used in the application.

Physiological Economy in Nutrition.—Prof. Chittenden, of Yale University, discusses the conditions of physiological economy in nutrition, in the June number of the *Popular Science Monthly*, with especial reference to experiments conducted in his own lab-

oratory by Mr. Henry Fletcher. It appears that Mr. Fletcher has practised economy of the sort for five years past and has accustomed himself to a diet simple in nature and very small in quantity, but entirely satisfactory and adequate. It is composed of a prepared cereal food, of milk and of maple sugar and is palatable and sufficient, as it contains all the essentials. The details of one of his experiments, extending over six days, are given below, taking averages. Average daily intake for six days: Proteids, 45 grams; fats, 38 grams; carbohydrates, 253 grams; calorics, 1,606 grams; nitrogen, 7.19 grams. The corresponding average daily output was: Urine, 6.3 grams; feces, .60 gram; total, 6.90 grams. The main points to be noted are the very small intake of proteids and the fact that the total fuel value of the daily food was about 1,600 calories. Voit's values for a man doing moderate work are: Proteids, 118 grams; fat, 56 grams; carbohydrates (sugar and starch), 500 grams; total fuel, full value, 3,055 calories daily. These are very much larger than Mr. Fletcher's amounts, yet it is to be noted that Fletcher was in perfect health throughout, his weight (165 pounds) remained unchanged, his capacity for mental and for physical work was excellent—even much above what might be expected from a person fed in the ordinary fashion. Moreover, the result is now normal with him, as his practice extends over years. Note also that the daily cost of his food was but 11 cents—and remember that it was fully satisfying in quality and quantity. In view of these results it may reasonably be asked whether the practice now in vogue as to food does not need careful examination—whether the whole of the Western world is not living on a wrong and a wasteful basis. Continued experiments on many individuals are needed to settle the question. The presumption seems to be that a radical change in our standards of living can be made with immense advantage to this and to every future generation.

Tuberculosis in Hawaii.—The mortality report of the Board of Health for the last month shows an unusual percentage of deaths from tuberculosis. Almost 20 per cent. of the deaths were due to that disease.

The Age at College Graduation.—Prof. Thomas of Columbia University has discussed in the June number of the *Popular Science Monthly* nearly 20,000 records of college graduates with respect to their age at graduation. The general belief is that the American boy takes his A. B. degree a good deal older than his father took his and a great deal older than did his grandfather. The data lead to the conclusion that the increase in age has been much exaggerated. It exists only for certain institutions, while others show a decrease. The normal age at graduation is about 22½ years. If entrance into professional life is later than formerly, the reasons must be sought elsewhere than in the college. It is, however, no longer possible, as it once was, for a lad to take his degree at 20 years of age. But the young man now leaves college with very much higher attainments than his father or grandfather possessed.

Louisville Academy of Medicine.—Wednesday, June 3, at the Louisville Hotel, the Practitioners' Club and the Falls City Medical Society, of Louisville, Ky., met and amalgamated, forming the Louisville Academy of Medicine, with twenty-eight members present. The following officers were elected: Dr. Hugh N. Leavell, President; Dr. John J. Moren, Vice-President; Dr. Hugh R. Manning, Secretary, and Dr. W. A. Jenkins, Treasurer. A most interesting paper on "Tumor of

the Kidneys" was read by Dr. Charles G. Lucas, who exhibited pathological specimen, removed at post mortem.

Obituary.—Carl Gegenbauer, the famous German anatomist, died at Heidelberg Monday last. He was born in Würzburg in 1826, and was a student at the university there under Kölliker and Virchow. After getting his diploma as physician, he devoted several years to anatomical studies, especially to an investigation of the lower order of animals in the Mediterranean region. In 1854 he was called to be professor of anatomy and director of the Anatomical Institute of the University of Jena. This post he held until, in 1863, he was elected to a similar professorship in the University of Heidelberg. He was the author of a number of works dealing with the anatomy, both of man and of animals.

Dr. Edward H. Everett died in Nashua, N. H., last week, aged fifty-nine years.

Dr. Leon H. Armstrong, fifty-two years old, who was born in Armstrong Mills, Ohio, and was a Surgeon in the United States Navy, died last week in Atlantic City, N. J., of paralysis. He was at the time of his death physician to the Board of Health in New York.

SPECIAL ARTICLE.

OPENING ADDRESS DELIVERED AT THE FIRST ANNUAL CONFERENCE OF STATE AND NATIONAL HEALTH AUTHORITIES, UNDER THE ACT OF JULY 1, 1902, WASHINGTON, D. C., JUNE 3, 1903.

BY WALTER WYMAN, A.M., M.D., LL.D.,
OF WASHINGTON, D. C.;

SURGEON-GENERAL U. S. PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE.

I BEG leave to express my pleasure in meeting you at this assemblage, called by myself in accordance with Section 7, of the act of Congress approved July 1, 1902.

What may be the result of these annual conferences time must determine, but certainly we may consider the present, the first annual conference under the law, as a most noteworthy event. For the first time in the history of the United States there has been placed within its statutes, by the act of Congress referred to, a provision looking to harmonious and cooperative efforts in public health matters between the national government and the state governments.

This status has long been desired, but difficult of achievement by reason of our republican form of government. It has been difficult for the National government to extend its influence into State health matters without appearing to infringe upon the States' authority, and it has been difficult for the States, individually or collectively, to seek aid from the government without appearing to surrender authority reserved to them by the national constitution. In the meantime, however, the Marine Hospital Service, now bearing the title of the Public Health and Marine Hospital Service of the United States, has become so developed and strengthened, and the State health organizations have been so perfected, that a sentiment of respect, one for the other, has been established, finding its expression in this law of

1902, and, in particular, Section 7 above referred to.

To my mind the outlook is bright. The great problems to be solved in sanitary affairs; the great work to be done in the suppression, and even elimination, of disease, and the cultivation of health and strength, so that physically, as well as in other respects, the United States may take a leading position among the nations, are propositions which should not be considered impossible of solution, and a proper development under the terms of this law will be an important step in this solution.

One of the most important features of this assemblage is its official character. All of us are familiar with conventions of similar purpose, productive of much useful information but entirely lacking in official significance. Here, however, are assembled the legalized health authorities of the States, representing the practical administrative experience as well as the theoretical and scientific knowledge required in the consideration of public health affairs.

Many of you have devoted the best years of a long professional life to the consideration of the subjects which will come before us, having acquired, in individual instances and on special subjects, unusual knowledge and wisdom.

Combined effort appears to be a distinguishing feature of this new twentieth century. This is seen in nearly all forms of civic and commercial life and even scientific and professional effort. It would seem that when the history of the twentieth century is written there will be lacking those great and single characters looming way above the average, leading, directing, or dictating; instead, there will be an elevation of the average, the best individual effort will, neither in purpose nor effect, aggrandize the individual, but will be exerted in connection with other effort of like nature for the establishment of a parity of well being among all. This, I take it, will be the keynote of our action, bearing constantly in mind the actual results to be attained and being determined to attain them.

To refresh your memory I will now read Section 7 referred to, and also Section 8, which is somewhat analogous.

It will be seen that Section 7 provides for three kinds of conferences. First, the Surgeon-General may invite as many of the health and quarantine authorities as he deems necessary, not more than one from each State, Territory, or District of Columbia, to a conference, whenever in his opinion the interests of the public health would be promoted thereby. Second, a conference must be called at least once a year of all the States, Territories, and District of Columbia. Third, upon the application of not less than five State or Territorial boards of health, quarantine authorities or State health officers, he must call a conference, but in this event only those States joining in the request are to be called.

While the present is the first annual conference it is not the first conference called under the

law. Last January upon the request of 22 States, a so-called plague conference was called to consider the situation in San Francisco. The proceedings of that conference in detail have been transmitted to each of you. The effect of it was undoubtedly very great in bringing about the present satisfactory status in San Francisco. The object of that conference was specific, but, as you will note, the law providing for the annual conference gives no details. We must assume, therefore, that the intent of the law is that we shall get together, and we are to decide ourselves as to the matters to be considered. It is evident that the conference is advisory in character, without changing in the least the present executive force of this Bureau of the Treasury Department.

It seems advisable at the outset, and for a satisfactory understanding of one another, to give a review of the laws and of the organization relating to the Public Health and Marine Hospital Service, and to receive in return an account of the same nature from each State delegate.

The laws especially relating to the United States Public Health and Marine Hospital Service can be found printed with the U. S. Quarantine Regulations, with the exception of the Sundry Civil Act approved March 2, 1901, which provided for a laboratory "for the investigation of infectious and contagious diseases, and other matters relating to the public health."

Having thus referred to the law, I propose now to describe the organization of the Bureau of the Public Health and Marine Hospital Service. For executive administration, the Bureau is divided into six divisions, each presided over by an Assistant Surgeon-General. There is, also, a Miscellaneous Division, presided over by an Assistant Surgeon, and the office of the Chief Clerk. The clerical force numbers about 20. These divisions are named as follows:

- Division of Marine Hospitals and Relief.
- Division of Domestic Quarantine.
- Division of Foreign and Insular Quarantine and Immigration.
- Division of Sanitary Reports and Statistics.
- Division of Personnel and Accounts.
- Division of Scientific Research.
- Miscellaneous Division.

Division of Marine Hospitals and Relief.—To this division are sent all matters relating to the marine hospitals, 22 in number, owned by the Service, and to the patients, numbering 58,000, treated annually in these hospitals and in some 110 relief or contract stations. The Purveying Depot, a large building located in New York, is under the direction of this division, to which is also referred all matters relating to hospital supplies, including subsistence, drugs, hospital furniture, surgical instruments and appliances, plans and specifications for hospital construction, and the conduct of the sanatorium for consumptive patients at Fort Stanton, New Mexico, where the service has a sanitary ranch, 56 square miles in area, the buildings of the fort having been placed in perfect condition, the patients in the sana-

torium numbering about 150. The scheme for this ranch embraces the removal of consumptives from our hospitals with a view to their improvement or recovery. Quite a large percentage have recovered, a number leave greatly improved, and all who desire can find employment after leaving in the same high, dry, and healthy locality. The hospitals are thus relieved from this contagious disease, and the vessels from which they come are subject to inspection and disinfection as to their forecastles or other quarters that have been occupied by known consumptive cases.

Division of Domestic Quarantine.—To this division are referred all matters relating to the national maritime quarantine stations, embracing 19 complete disinfecting stations, and 18 inspection stations. At the former are hospitals, barracks, disinfecting machinery, steamers, and small boats, all requiring constant care and attention. This division, also, must see to the expenditure of appropriations for new stations, involving purchase of lands, construction of piers and buildings, said construction being generally under the Supervising Architect of the Treasury on plans approved by the Bureau and the Department, but occasionally the bureau attends to this construction itself. To this division are also referred all matters relating to the quarantine regulations and their interpretation. Matters relating to interstate quarantine and suppression of epidemic diseases are also handled in this division. Quarantine upon the Mexican and Canadian borders is also conducted through this division.

Division of Foreign and Insular Quarantine and Immigration.—To this division is assigned the management of the national quarantine stations in Hawaii, Porto Rico, and the Philippine Islands, the supervision of officers detailed for duty in the offices of the United States consuls in foreign ports, who sign the bills of health with the consuls. At present there are three officers in Japan, Yokohama, Kobe, and Nagasaki; two in China, Shanghai and Hongkong; one in Naples, Italy; ten in Cuba, three in Havana, one each at Cienfuegos, Santiago, Nuevitas, and Matanzas, and several at subports; four in Mexico, two at Vera Cruz, one at Progreso, and one at Tampico; six in the fruit ports of Central America, namely, Bocas del Toro, Columbia, Port Limon, Costa Rica, Bluefields, Nicaragua, Ceiba and Puerta Cortez, Honduras, Livingston, Guatemala, and Belize, British Honduras.

To this division are also referred all matters relating to the medical inspection of immigrants, a most important function of the service, requiring the detail of a large number of officers.

Division of Sanitary Reports and Statistics.—This division is charged with the preparation of the Public Health Reports, published weekly by the Bureau. All matters of a statistical nature are referred to it.

It may be of interest to state that some question has arisen as to whether the work of this division, which is authorized both by the law of 1893

and the law of 1902, may not duplicate the work of the Census Bureau, but I am pleased to state that after conference with the Chief Statistician of the Census Bureau and others connected therewith, it has been found that there need be no duplication or interference by one bureau with the other; on the contrary each will be helpful to the other. The Census Bureau, in addition to the decennial census, will publish an annual census of mortality and births, but the weekly and monthly reports will be published as heretofore by this bureau, and morbidity reports, which are so much desired and which will require special organization to procure, will be undertaken by the Public Health and Marine Hospital Service.

Division of Personnel and Accounts.—To this division are referred all matters relating to the personnel of the service, examinations for admission to the corps of commissioned officers, examinations for promotion, appointments and resignations, appointment of boards for the physical examination of officers of the Revenue-Cutter Service. This division has, also, charge of the bookkeeping of the service.

Division of Scientific Research.—This division might be better called the Division of Scientific Research and Sanitation. To it is referred all matters relating to the Hygienic Laboratory. It should be understood that this laboratory, or the staff thereof, is not a part of the bureau proper, though at present located in the same building. A new building, however, is just completed, located on the grounds of the old Naval Observatory, about half a mile west of the White House on the river bank. Five acres of this tract were turned over from the Navy Department for the establishment of this laboratory. It will give the director of the Laboratory great pleasure to arrange with the delegates to this Conference to show them this building. The laboratory has an advisory board, consisting of a delegate from the Army, not yet named, Dr. Urie of the Navy, Dr. Salmon, Chief of the Bureau of Animal Industry; Professors Welch, of Johns Hopkins; Flexner, of Rockefeller Institute; Sedgwick, of the Massachusetts Institute of Technology; Vaughan, of the University of Michigan; and Westbrook, of the University of Minnesota. Under the law of 1902, three new divisions were added to the laboratory, the Division of Bacteriology already existing. These three new divisions are those of Zoology, Chemistry, and Pharmacology. But one of these new divisions has been organized, namely that of Zoology, and the good results of this new organization are manifested in the recent discoveries and published report of the Chief of this Division, Dr. Stiles, upon the Prevalence and Geographical Distribution of the Hookworm. Bulletins, embodying important results of investigations, are published from time to time under the supervision of the Director of the Laboratory, Dr. Rose-nau. It is believed that Congress can be influenced to provide for the extension of this laboratory by the erection of new buildings from time

to time as the necessity therefor becomes demonstrated.

To this Division of Scientific Research and Sanitation are referred special requests for scientific investigation of special diseases, as for example the recent investigation of the so-called spotted fever of Bitter Root Valley, Montana. The initiatory steps for special investigations of this character are taken in this division, but any prolonged or technical work connected therewith is turned over to the laboratory.

Requests for special investigations of water pollution or local causes for the spread of typhoid fever are referred to this division.

The officer in charge of this division examines all current literature relating to scientific medicine or sanitation and keeps a card index of the same.

Miscellaneous Division.—The Miscellaneous Division has charge of the mailing of all bureau publications, and certain miscellaneous duties relating to the reports of necropsies from the marine hospitals, the medical examination of claims for benefits on account of injuries received by the crews of life-saving stations, certain matters relating to the annual report, etc.

Under certain bureau orders the operations of these several divisions are coordinated so that the work of one division, where it affects the personnel or duties connected with another division, is accomplished with the full knowledge and acquiescence of the other. There are also two regular Bureau Boards for the careful consideration of matters referred to them—namely, the Service Board and the Sanitary Board.

Yellow Fever Institute.—There is one other feature of the bureau, assigned to no one particular division, but embracing all, namely, the institute for the study of yellow fever, called the Yellow Fever Institute, with which most of you are familiar. This institute was founded about two years ago for the purpose of learning all that could be learned about yellow fever, including its etiology, and to bring to this work the aid of all reputable physicians who might desire to take part therein, its membership including, besides the officers of the Marine Hospital Service, special investigators both in this and foreign countries. It is divided into four sections, the chairman of each section being one of the division officers of the Bureau to which, under bureau organization, matters of a kindred nature would naturally come. These, together with the chairman and secretary of the Institute, form an executive board to consider, especially with regard to publications, the contributions received from the members. Twelve bulletins have been issued. A thirteenth, and the most important of all, relating to the cause of the disease, is now being printed and will be ready for distribution within a few weeks. This bulletin contains the report of a working party sent to Vera Cruz last summer to investigate and attempt to find the causative agent of the disease. Their work was continued during the winter with the material obtained in

Vera Cruz, and gives evidence that progress has been made toward a final result. A second working party of three, two of whom were in the first party, are now in Vera Cruz and vicinity pursuing a continued investigation, and it is the purpose of the institute to continue in the prosecution of this work until successful. This Institute embraces new features in the investigation of the cause of a specific disease, and if it proves successful with regard to yellow fever it may be that the new features of organized effort which it embraces will be applied to the investigation of other diseases.

Other important matters engaging the attention of the service are the proposed legislation for the establishment of a national leprosarium in which may be received the occasional cases of leprosy found in the States and which give the local and State authorities so much trouble; also the enforcement of the new regulations relating to the examination and licensing of establishments for the production of vaccine, serums, and antitoxins, under the law passed by the last Congress. These regulations go into effect next August.

Mention should also be made of the connection of the service with the International Sanitary Bureau of American Republics, established in accordance with resolutions of the Conference of American States held in the city of Mexico winter before last.

The Medical Corps.—Finally, with reference to the service work, I wish to say a few words with regard to the medical corps, numbering 108 commissioned medical officers received into the corps only after a thorough examination as prescribed by law, appointed first to the lowest grade, and promoted to the higher grades only after further successful examination. The discipline of the corps is military in character, the regulations for its uniforms and government are prescribed by the President, its officers, by reason of unusual responsibilities, continuous medical and surgical care of the large clientele, and by special scientific instruction in its Hygienic Laboratory, are kept in the van of professional excellence. There are, however, nearly two hundred acting assistant surgeons, some of whose appointments are temporary in character, but a number of whom have been long in service by reason of especial adaptability or because the arrangement made with them is necessary in the interest of economy. These officers of the medical corps are stationed in all parts of the United States and its dependencies and constitute our reliance not only in the ordinary work of the service but in times of special need.

Conference Organization.—I have deemed it necessary to give this somewhat extended account of the organization of the service, both that our aims and methods may be understood and that I may the more readily explain a proposed method of making these annual conferences of practical utility. It might be advisable to appoint on special committees members of the conference es-

pecially interested in the several subjects to be considered by these committees, said committees to remain in organization during the year and to receive for further conference with the Surgeon General such matters as might be pertinently referred to them by him. The titles of these committees would find their analogues in the several divisions of the Bureau. The reports of these committees could be read to the full conference at its annual meeting, and, if adopted by the bureau and the conference, would have a force and influence which would naturally result from the conjoint action of the national and state authorities. I would suggest tentatively a committee on Scientific Research and Sanitation, second on the Prevention and Spread of Epidemic Diseases, third on Morbidity and Mortality Statistics, fourth on State Legislation, fifth on Education. In addition to these, there might be special committees on certain specified diseases, namely, Cholera, Yellow Fever, Plague, Smallpox, Tuberculosis, Leprosy, Typhoid Fever. To these committees might be committed such resolutions as may be offered here, but the adoption of any resolutions by this conference, it seems to me, should not be until after a report thereon had been made by the special committee to which it is referred.

It is believed that the above plan is at least worthy of trial. It would give real aid and would stimulate the members of the committees in an investigation of the subjects confided to them, and might produce a uniformity of effort, a coordination of work in different parts of the country, which now does not obtain.

CORRESPONDENCE.

THE MADRID BULL-FIGHT.

To the Editor of the MEDICAL NEWS:

DEAR SIR: Enclosed please find a few souvenirs, which will give you a good idea of the bull-fight held in Madrid on April 26, 1903. I cannot say that I approve of this sort of sport, but like many others who arrived prior to April 19, I had plenty of time on my hands and a large amount of curiosity.

I was impressed from the first with the great vitality of the beasts, and at the apparent difficulty with which the swordsman labored in an effort to sever a vessel in the thorax sufficiently large to cause bronchial or fatal hemorrhage. This proved of such great interest to me that I resolved to attend the bull-fight of April 26.

In this fight *six bulls were killed*, and in three instances I witnessed a swordthrust in the thorax from three to five times without apparent injury to the larger pulmonary or other vessels. (No bronchial hemorrhage, and the beast still fighting hard). I was especially interested in these observations, as I have done considerable experimenting with the organotome in an attempt to ascertain just how difficult it really was to puncture some of the larger vessels in the thorax, and I found where an instrument as delicate as the organotome was used, it was almost impossible to puncture a vessel at all.

Another interesting observation was the apparent absence of pneumothorax after certain sword thrusts, and at a time, too, when the lungs were working under

forced inspiration, the beasts being very tired. The sword thrusts, in these particular instances, did not seem to weaken the animals in the least as they continued to fight hard until the fatal thrust. Prof. Osler drew my attention to the fact that a hypodermic needle had caused pneumothorax, and this prompted me to conduct a series of experiments along these lines. I found I could make any number of organotome punctures in the lung, and any time within twenty minutes, an hour or a day I could kill the animals, remove the lungs, sink them in water, and after the highest possible inflation there was not the slightest leakage, but if the dead lung was punctured the leakage was very considerable.

The excursion to the Escorial would have been larger had it been more thoroughly advertised.

Hoping this may prove of at least slight interest to you, I remain,

Yours very truly,
W. BYRON COAKLEY.

New York, May 29, 1903.

TRANSACTIONS OF FOREIGN SOCIETIES.

French.

THE DANGERS OF SUBCUTANEOUS INJECTIONS OF GELATINIZED SERUM—ASSOCIATED NEOPLASMS—TRANSITORY TACHYCARDIA OF ALCOHOLIC ORIGIN—ON THE PRESENCE OF PNEUMOCOCCUS IN THE BLOOD OF PNEUMONIA PATIENTS—THE SITUATIONS OF CUTANEOUS ANESTHESIA IN TABETICS AND THEIR RELATIONS TO GASTRO-INTESTINAL CRISES—ON THE ACTION OF INTRAVENOUS INJECTIONS OF GELATINE ON THE COAGULATION OF THE BLOOD—ON THE TUBERCULOUS INFECTION OF A DOG BY WAY OF THE DIGESTIVE APPARATUS—INHALATION OF AMYL NITRITE AS A MEANS OF TREATING HYSTERICAL SEIZURES—PSEUDONEOPLASTIC EPITHELIAL INFLAMMATION—CHRONIC INFANTILE RHEUMATISM—ACIDORESISTANT BACILLUS IN SYPHILITIC PATIENTS.

M. CHAUFFARD, at the Academy of Medicine, April 7, 1903, read, at the suggestion of a case of fatal tetanus consecutive upon a subcutaneous injection of gelatinized serum, notes of which had been addressed to the Academy by MM. Lop and Murad (Marseilles) a report in which he recalled a similar accident which he had witnessed seventeen months ago in the same circumstances and under the same conditions, and stated that in a certain number of cases, also there had been reported abscesses which contained anerobic microbes. It appears at the present time to be well proven that it is to the impurities of the gelatine employed and to its imperfect sterilization that one must refer the cause of these attacks of tetanus. In order to prevent the recurrence of similar facts, the author suggested submitting a note to the proper authorities as to the suitable method of preparing gelatinized serum, and to control its manufacture by various laws and regulations, such as are now in force concerning the marketing of organic serums.

M. POTIERAT, at the Society of Surgery, April 3, 1903, said that a recent communication by MM. Monod and Guinard had been presented to the society as to the association of neoplasms. For his part, he had found 11 cases of fibroma uteri coincident with cysts of the ovary. In one case in which there was a voluminous cyst of the ovary containing at least 18 liters of fluid, he was satisfied with the mere removal of the cyst, leaving the fibromatous uterus behind, as suggested by the family physician, who was assisting at the operation and feared lest the removal of the uterus also would augment the gravity of the operation. The woman recovered perfectly from the ovariectomy, but she has had and is still having severe hemorrhages from the womb,

which have made him regret that he did not remove this organ at the operation. As a general rule he thinks it is better to remove fibromata of the uterus at the same time as the cyst of the ovary.

M. TRIBOULET, at the Medical Society of the Hospitals, April 3, 1903, related observations of two patients afflicted with transitory tachycardia of alcoholic origin. In the first individual the pulse, which showed between 130 and 140 beats a minute decreased at the end of a week under the influence of rest in bed and a milk diet, first to 116 and finally to 88 beats to the minute. The same treatment brought about the identical results in the second patient at the end of six days. Since to all appearances these functional disorders are due to inflammatory changes in the pneumogastric nerve, it is proper to ask whether these preliminary alterations, functional in character, may not bring about a certain predisposition which later favors the appearance of a true neuritis in the branches of these nerves which go to the heart, which in turn may produce chronic symptoms and even a fatal result.

M. WIDAL, at the same society, said that it is a familiar fact that typhoid bacilli may easily be found in the blood of patients afflicted with enteric fever, by the simple method of inoculating the blood in large quantities into bouillon (5 c.c. of blood into from 300 to 500 c.c. of bouillon or peptonized water). It would be interesting to make researches as to whether, by this same method, one might not discover the presence of pneumococcus in the blood of pneumonia patients. He has recently been studying this point with MM. Le Mierre and Gadaud. Eighteen subjects of pneumonia were involved. From six they isolated the pneumococcus; 12 cultures remained sterile. Among these 12, only two of the patients died, while the other ten fully recovered. Of the six cases which gave positive results, four were cured, and these four were concerned in a grave degree of pneumonia with symptoms of profound infection. The two who died passed away with asystolia and with pneumococcal meningitis respectively. The inoculations were carried out between the fourth and the eighth day. Their conclusions are in agreement with those of other authors, and to the effect that when pneumococcus appears in the blood of pneumonia patients, this fact does not mean a necessarily fatal issue, but certainly denotes that the case is one of great gravity.

M. ERZ, at the Society of Biology, April 4, 1903, stated that he has been carrying out researches in 67 tabetics as to the anesthesia of the thorax and its practically constant coincidence with the appearance of gastric crises. In one woman who presented an intestinal crisis, a true type, without participation from the stomach, the zone of cutaneous anesthesia, instead of being situated in the thorax, extended over the upper region of the abdomen, beginning at the xiphoid cartilage, and almost reaching the pubic region, and therefore representing the period innervated by the nerves from the seventh to the twelfth dorsal, inclusive. When the visceral crisis is ended, these anesthetics should disappear at once if the tabes is in the initial stage; later there persists over the same territory a certain degree of hypoaesthesia, more pronounced toward touch than toward pain. Subjects who never have had gastric crises do not show as a rule, any anesthesia over the thorax. He decides, therefore, that an examination of the thorax in difficult cases may make a diagnosis possible between tabes dorsalis with gastric crises and other diseases due to changes of the stomach itself, which show themselves with vomiting.

M. GLAY, at the same society, April 4, 1903, read a paper on the action of intravenous injections of gelatin upon the coagulability of the blood, stating that it is

several years since MM. Gastre and Floresco gave voice to the opinion that gelatin administered into the veins in a 5 or 10 per cent. solution will increase the coagulability of the blood. Recently, with the aid of M. Camus, Glay has repeated the experiments of these two authorities, and has proved that the coagulating power of gelatin is nil, provided that previous to the injection of it into the veins, exact neutralization is obtained. Since this series of experiments he has conducted another with M. Richaud, which have tended to prove that the gelatin of commerce always obtains an appreciable quantity of chloride of calcium, varying between two and five per cent. In this line of work it is proved that when gelatin free of chloride of calcium is injected into animals, it tends naturally to lessen rather than to augment the coagulating powers of the blood. Through these two lines of research he believes it possible to conclude that the pretended properties of gelatin in coagulating the blood are ascribable in reality to the acid qualities of this substance, and to the salts which it contains.

M. F. ALOÏND (Lyons), before the same society, submitted a note according to which the ingestion of the human *Bacillus tuberculosis* is capable of infecting the digestive tract of a dog in three out of seven cases, or practically in 42 per cent. of the observations. These intestinal tuberculosis became generalized twice, and caused tuberculosis of the spleen and lungs. Twice, also, in the absence of all macroscopic and microscopic lesions in the gastro-intestinal tract, the lymphatic nodes about the stomach were shown to be tuberculous. This curious observation shows that the human *Bacillus tuberculosis* may pass through the intestinal mucous membrane, itself healthy, without leaving traces of its transit, and may then infect the whole organism. These facts impose a certain reserve as to stating where lies the door of entrance of pulmonary tuberculosis. Absence of intestinal lesion may not forbid the supposition that the infection came through the gastro-intestinal tract.

M. HERTZ communicated to the Medical Society of the Hospitals, April 3, 1903, in the name of M. Loust and himself, observations of two women afflicted with hysteria, whose symptoms disappeared practically instantly after inhalation of amyl nitrite. In the first case the woman was twenty-six years old, and for three weeks had shown hemicontacture, hemianesthesia and aphasia. The second individual was a fifty-five-year-old man, who presented hemiparesis, hemianesthesia and stammering.

M. RAMMOND, at the Society of Biology, April 4, 1903, stated that the injection of talc, charcoal, subnitrate of bismuth and naphtol, finely divided into powder, into the uterus, followed by a ligature of the canal, will bring about, at the end of a month, a reaction in the kidney very different from that obtained by Straus and Geumond after ligature alone, in certain ways. In brief, there is the pseudoneoplastic epithelial proliferation of manifest degree, but this proliferation, no matter how intense it may be, does not pass the walls of the canal, and in other words, is not infecting. It presents, when compared with true cancer, the same features which pseudotubercle shows when caused by inert foreign bodies toward true *Bacillus tuberculosis*.

M. BARDIER, at the Medical Society of the Hospitals, April 3, 1903, reported two cases of chronic infantile rheumatism which he had seen in two children, respectively thirteen and fourteen years old, who were both afflicted with chronic rheumatism accompanied by deformity of the hands and fingers. The index and little fingers of each hand, in particular, presented an incurvation of the distal and middle phalanges, with its

concavity directed toward the axis of the hand, and showing the so-called pincer deformity of Homard. Radioscopy showed that this deformity was due to alteration in the periarticular tissues of fibrous character, which shows that such inflammation is in children of the true fibrous type.

MM. RIPPAN and HENROB (Nantes) at the Society of Biology, April 4, 1903, presented a note in which they claimed to have established the existence of acidoresistant bacilli in the scrapings from hard chancres, mucous patches and similar syphilitic lesions. These bacilli are identical with those discovered by Lustgarten in the same lesions. This micro-organism has also been found in the urine of a number of syphilitic patients in the proportions of three to seven, and in one case it was found in the urine of a patient at the commencement of and during the course of a reinfection.

SOCIETY PROCEEDINGS.

HARVARD MEDICAL SOCIETY OF NEW YORK CITY.

Regular Monthly Meeting, held Saturday, March 28, 1903.

The President, Frank H. Daniels, M.D., in the Chair.

The scientific business of the evening consisted of a demonstration of the Riva-Rocci sphygmomanometer by Dr. George E. Brewer. This is the instrument invented in Italy which is now employed at many surgical clinics, especially at Johns Hopkins in this country, for the clinical estimation of blood pressure and its relation to shock.

Development of Knowledge of Shock.—Dr. Brewer said that shock was recognized as a distinct pathological entity by surgeons for a long time before any definite knowledge of its causation was obtained. It was noted that in about 90 per cent. of the cases of shock death took place from respiratory failure. Over thirty years ago, Goltz tapped the mesentery of the frog when the abdomen was opened and even the slight blows with the scalpel caused respiratory arrest and the symptoms of shock in the animal. This was the first experimental demonstration in the subject. Blum considered that shock was due to reflex along the pneumogastric nerves from abdominal irritation. Crile, in our own time, was the first to make the subject clearer than before and to show that in all shock there is first a period of high blood pressure, followed by low blood pressure and death.

Source of Shock.—Crile's experiments demonstrate that there is a paresis of the vasomotor mechanism which interferes with blood pressure and consequently so alters the general circulation as to set up serious reflex and nutritional disturbances in the nervous system. The more highly specialized are the nerves leading to the injured part and the more abundant the nerve supply the more reflexes are set up whenever trauma occurs. Hence wounds of the skin cause more shock than deep wounds affecting muscles and bones. If a large superficial area of skin is injured, even though the injury does not go far beneath the surface, shock is apt to be extensive. All wounds of the nervous system itself and manipulations of the nerve substance are alike to be followed by considerable shock. The pyloric region of the stomach and the neighborhood of the gall-bladder are especially likely to be sources of considerable shock if surgical manipulation of these structures becomes necessary. Injuries to nerve trunks, especially if of any extent, produce extensive shock. Injuries of muscles and still less of bones are not followed by much shock.

Anticipation of Shock.—In certain operations, especially in those upon the abdominal organs involving much manipulation, the surgeon expects to have considerable shock occur. The important element in these cases is to recognize the occurrence of the premonitory symptoms of shock and anticipate its bad effect partly by hastening the operation and partly by taking such other measures as may be deemed necessary. For this purpose the Riva-Rocci sphygmomanometer proves of distinct service. Long before any disturbance of the circulation by means of the pulse can be noted there is a distinct drop in blood pressure, which constitutes the danger signal of approaching shock. This is no merely theoretic consideration, but has been demonstrated over and over again, by surgeons in practical work. Harvey Cushing at Johns Hopkins has found in a large number of cases that the Riva-Rocci instrument controlled by the anesthetist is an almost infallible sign of index for the approach of shock and gives definite information long before any change in the pulse-rate can be noted. The observations in this matter have been confirmed by Crile whose studies in shock put him in the position of an authority in this matter.

Technic of the Application of the Instrument.—The Riva-Rocci sphygmomanometer consists of a column of mercury that under the influence of blood pressure rises to a certain height. The force of the blood pressure is exerted on the instrument by means of a hollow armlet, which is passed around the arm above the elbow and inflated with air by means of the bulbs of a Paquelin cautery instrument until the pressure of the armlet filled with air causes complete obliteration of the pulse. Sufficient air is then allowed to escape from the apparatus until the pulse just becomes distinctly palpable once more. Under the influence of the pressure within the instrument under these circumstances the column of mercury in the tube is supported at a definite height with slight variations due to the modifications of blood pressure immediately following the heart beats. The instrument is not difficult of application and while it requires some practice to differentiate normal and abnormal conditions this is not more than may be reasonably expected from the ordinary careful anesthetist.

Intermittence of Tests.—Dr. Brewer said that the pressure exerted upon the armlet, is allowed to continue only for a short time and never any longer than is necessary to take a single reading of blood pressure. Every three to five minutes the pressure is once more exerted by means of the bulbs mentioned and a new test taken. A distinct drop in the record of blood pressure is a danger signal that must not be neglected and indicates the need for haste in concluding the operation and taking other measures to prevent the development of impending shock.

Demonstration of Sphygmomanometer.—Dr. Brewer then demonstrated on the arm of one of the physicians present the action of the Riva-Rocci instrument and showed how the upper level of the mercury obeys the up and down curve of blood pressure that corresponds with the heart beat. He demonstrated also that if the instrument be left inflated for some time it might easily cause the individual on whom the test was being made considerable inconvenience. In response to the question of how much experience is required, Dr. Brewer said that after the use of the instrument even a few times a good working idea of what it indicated was not difficult to obtain. He conceded that the result obtained from the use of the instrument depended somewhat on the personal equation of the observer. It is not an instrument of absolute precision for two successive observers may not fix the air pressure of the instrument at just the same point the one

considering that the pulse can be distinctly recognized after preliminary obliteration at a time when another would scarcely consider the pulse palpable.

Dr. Brewer said that all recent observations point to the fact that surgical shock is due to a breaking down of the delicate vasomotor mechanism which controls the dilatation and contraction of the capillaries and so rules blood pressure within the body. When this breaking down occurs, the ordinary forms of stimulation serve no effective purpose. The heart muscle itself is not exhausted and so heart stimulants, though so frequently employed and so highly recommended, are not indicated. The difficulty does not lie in the lack of power on the part of the heart to drive the blood through the arterial system, but on the fact that dilatation of the capillaries leads to accumulation of blood in certain parts of the body and so disturbs the circulation as not to allow the return to the heart of the blood on which it could exert its force. With regard to the vasomotor mechanism and the capillaries themselves, they are already overstimulated and exhausted and further stimulation will only make matters worse. Intravenous salt infusion does seem to accomplish something at times but does not give uniformly good satisfaction.

Crile's Pneumatic Suit.—Crile's studies in shock and its physiology have led him to the invention of a pneumatic suit. This consists of a garment so constructed as to be inflatable with air. After being put on the patient this suit is pumped as full of air as is considered necessary to increase blood pressure in the particular case. This device has given excellent satisfaction in Crile's own hands and Dr. Brewer has found it of apparently good service in a case in which there was every reason to fear that serious and perhaps even fatal shock would result from surgical intervention. The theory on which the suit was invented seems rational and as its effect is mechanical, and it can be demonstrated that it does actually produce an increase in blood pressure; the further use of the device would seem to be called for until such time as surgeons can decide as to actual value.

Illustrative Case.—In Dr. Brewer's case for which the pneumatic suit was employed the patient had suffered for five days from severe symptoms of intestinal obstruction. At the time when operation was undertaken there were symptoms of considerable shock and as it was expected that operation would demand no little manipulation of the intestine this would add greatly to the shock. The operation lasted for an hour and a quarter. At the end of that time the patient's condition was exactly as good as at the beginning. Never during the operation was there the slightest feeling of the necessity for hurry in its completion. The intestines were so much dilated that they had to be evacuated and the openings thus made carefully sutured before the patient could be considered to be in condition to leave the table.

Adrenalin for Shock.—Recently, on theoretic grounds, the intravenous injection of a dilute solution of adrenalin has been recommended for shock. There is no doubt that adrenalin stimulates unstriated muscular fiber and that it must consequently have an effect in causing contraction of the arterioles and capillaries with a consequent rise in blood pressure. Striking effects can be produced by its use. In a recent case under Dr. Brewer's care the patient suffering from Basedow's disease in severe form had all the symptoms of hyperthyroidism. In order to relieve the condition one-half the thyroid was removed. Shortly afterward the pulse became uncountable, the patient became cyanosed all over and there was evidently a marked general vasomotor paresis. Fifteen minims of Parke, Davis & Co.'s adrenalin was diluted with 1,000 c.c. of normal

salt solution and its injection directly into the vein begun. Before much more than one-half of the solution had been injected there was complaint of precordial pain and apparently too much blood was being sent to the heart. Since then, this remedy has been tried in a number of other cases at Roosevelt Hospital and has given good satisfaction in most of them.

Lack of Effect of Digitalis.—Dr. Reynold Wilcox in discussing Dr. Brewer's paper said that the present position of surgeons with regard to the uselessness of heart stimulants in shock is a reflection of the position occupied by therapeutists for a long while. Shock is due not to the heart, but to the blood vessels. There is no use in employing digitalis, though this remedy is so often recommended. No effects will be seen from digitalis under 72 hours after its administration. If shock is anticipated as the result of operative measures, then digitalis might be used beforehand for its effect in raising blood pressure and consequently as a prophylaxis of shock. If begun 72 hours before there will be contraction of the blood vessels sufficient to minimize all ordinary symptoms of shock. Dr. Wilcox considers that the pneumatic suit invented by Dr. Crile represents a mechanical solution of the problem of shock that should be followed up persistently by surgeons in order to decide its absolute value. There seems no doubt that on theoretic grounds it should be of very great service in this serious and hitherto intractable condition.

Danger of Adrenalin.—Dr. Wilcox said that the symptoms noted in Dr. Brewer's case show what the danger of adrenalin may be, in cases of threatened shock. The stimulation of the unstriated muscular fiber in the capillaries may lead to a rise of blood pressure, before the heart muscle is stimulated sufficiently to overcome the difficulty thus presented. This will for a time cause interference with the heart contraction and explains the pericardial pain of Dr. Brewer's patient. These pseudo anginas occur under other circumstances and are familiar to the physician, there being a certain amount of overdistention of the heart as the result of spasm of the capillaries in many other conditions.

Surgical Shock and Hemorrhage.—Dr. Wilcox pointed out that not only are there many close analogies between surgical shock and internal hemorrhage, but both conditions may be considered to be due to latent hemorrhage. Surgical shock is an accumulation of blood in the splanchnic area. In a word the patient bleeds into his own dilated blood vessels in the abdominal region. These become so distended that they may hold the major part of the blood in the body. Concealed hemorrhage is as a rule a bleeding into the belly cavity or into a hollow viscus. In either case the symptoms will be almost alike and will depend to a large extent on the absence of blood at the brain and the difficulty of heart action because of the presence of insufficient blood properly to stimulate normal heart contractions. Hence the difficulty of differentiating these conditions, surgical shock and hemorrhage and the care that must be exercised not to confound one with the other. Hemorrhage of course requires surgical treatment. Shock is best treated by mechanical or medical measures.

Excess of Adrenalin.—Dr. Wilcox warned against the too liberal use of adrenalin or its employment except under careful supervision and when absolutely indicated. In weak individuals particularly, excessive amounts of adrenalin may be followed by such disturbance of the circulation and especially of the heart's action that the circulatory equilibrium will not be restored before serious damage has been done. Overdistention of the heart, as evidenced by the precordial pain noticed in these cases, may become so pronounced as to injure the heart muscles or cause even fatal collapse.

This is especially true in anemic patients and in the old in whom shock is most liable to occur.

Strychnine Often Overdone.—Dr. Robert H. Greene said that in cases of shock he has long been of the opinion that too much strychnine was employed and too much confidence placed in the drug. The effect of strychnine is quite as if one would whip a tired horse when it is already laboring as much as possible with an uphill pull. He has found that intravenous injections act for too brief a period and has found that high enemas of warm salt solution are quite as effectual, and, being more slowly absorbed, give good results for much longer periods. Dr. Greene is doubtful if either is superior to chloroform in cases where shock already exists, though in states of beginning collapse there is something to be said in favor of chloroform and many good authorities consider it distinctly preferable.

Rapidity of Operation.—Dr. Fuller said that in cases of shock or where there are any preliminary symptoms pointing to the occurrence of this condition the most important thing for the surgeon is to operate rapidly and so shorten manipulations on which the increase of shock depends. The use of Crile's suit would seem to be of no avail and skill and rapidity in operation are the only factors that must count in the prevention of the serious conditions that develop as a consequence of shock.

Dr. Walker said that Professor Halstead of Baltimore is using the Riva-Rocci sphygmomanometer in all operations with great satisfaction.

Shock as General Vasomotor Paresis.—Dr. Howard Lilienthal said that while shock has been studied with excellent results in recent years the knowledge thus far gained is not of as much practical value as might be hoped for. While shock is now apt to be considered a bleeding of the patient into his splanchnic veins there does not seem to be any good reason for limiting this intravenous bleeding to the abdominal area. In collapse patients are pale all over, showing that the vasomotor paresis is generalized. It would seem that there may be general venous dilatation in cases of shock. There is no doubt that the most shock is apt to occur whenever there is much interference with the nerve supply and consequently reflexivity with the nerve supply of the abdominal viscera. The definition of shock should not, however, be limited absolutely to abdominal effects. With regard to the treatment of shock Dr. Lilienthal considers the use of the suit suggested by Dr. Crile as a refinement that seems very unlikely to come into general practice. The use of elastic bandages before an operation in order to squeeze the blood out of the part, which has been adopted as a practice in surgery for many years now, has probably something of the same effect.

Recognition and Treatment of Shock.—With regard to the Riva-Rocci sphygmomanometer he is inclined to the opinion that its practical use will require considerable experience and that if the surgeon is to depend on the anesthetist in this matter the latter will have to be an expert in the use of the instrument. Even then the recognition drops in blood pressure is dependent to no slight degree on the personal equation of the observer for while one man after obliteration of the pulse by the inflated bandage will recognize it after allowing a certain amount of drop in the pressure, another will require much more of a fall in pressure before he will consider the pulse to have distinctly returned. With regard to the drug treatment of shock Dr. Lilienthal agrees with those who consider that heart stimulants are of very little avail and his favorite drug in these cases is morphine rather than strychnine. Morphine is used in small stimulant doses, though not in doses sufficiently large to produce any narcotic effect. The

sphygmomanometer undoubtedly needs perfecting before it can be brought into general use, since, even in the demonstration this evening, by a slight accident it was prevented from working for some time.

General Treatment of Shock.—Dr. H. S. Spooner said that mild shock of gradual development needs to be treated differently from sudden shock with rapid evolution of symptoms. The tendency to progressiveness in the first form mentioned may be checked by heart stimulants as digitalis or by vasomotor relief through nitroglycerin. Severer forms need intravenous injections for while the blood is diverted to the abdominal area and it is often said that the portal system can contain all the blood in the body, the heart must be given something to work on.

Dr. Daniels said that in his experience no drugs were of efficient service in the treatment of genuine shock except morphine in doses just large enough to quiet the nervous system and act as a gentle stimulant. Heart stimulants especially were not likely to come up to expectations in these cases.

Adrenalin Direct to Heart.—In closing the discussion, Dr. Brewer said that most of the drugs recommended for shock are utterly ineffectual. It seems unwise to prescribe nitroglycerin since the modern idea of shock is a vasomotor dilatation owing to paralysis of the vasomotor nervous mechanism and the special physiological action of the nitrites is to cause vasomotor dilatation. Adrenalin is the substance on which all eyes are fixed now in the matter of the drug treatment of shock. Some of its effects are already clinically known. Experimentally the outlook seems to be very promising. Dr. Cushing recently saw a dog stop breathing during an experiment. A solution of adrenalin was injected into the veins but without effect. The heart was then exposed and irritated by direct compression but without result. Artificial respiration was kept up and adrenalin was injected directly into the heart cavity. The heart began to beat again and though it was over twenty minutes since the animal stopped breathing recovery was complete.

CHICAGO GYNECOLOGICAL SOCIETY.

Joint Meeting, held March 18, 1903.

The President, Charles S. Bacon, M.D., of the Gynecological Society, in the Chair.

Definition of Accouchement Force and the Indications.—Dr. Charles S. Bacon contributed this paper. Among other things he stated that the term accouchement force is an imported one, and is applied to various methods of removing forcibly from the gravid uterus its contents when the cervix is closed or only partially dilated. It embraces two procedures, dilatation of the cervix, and the extraction of the contents of the uterus. Dilatation of the cervix may be accomplished in different ways. These ways were discussed at length.

He briefly described a few of the principal obstetrical complications which call for the use of one or the other of the methods of forced delivery. Eclampsia is undoubtedly an obstetric complication in which most often accouchement force is used. If the cervix is dilated at the beginning of the eclamptic attack, the uterus should be emptied. But when the cervix is closed, there is still diversity of opinion as to the procedure that should be adopted. Formerly, accouchement force gave such bad results that it was generally condemned in the treatment of eclampsia, but within the last ten years it has come to be generally used. Other serious conditions of the mother which may demand forced delivery are severe anemia, weakness due to other organic dis-

cases, as tuberculosis and heart disease. Antepartum hemorrhage is another condition which demands forced rapid delivery. That variety of antepartum hemorrhage due to premature detachment of the normally seated placenta gives perhaps the most urgent indications for accouchement force. Those who have had experience in vaginal surgery would probably prefer in these cases not only the incision of Duhrssen, but the extension of that incision through into the lower uterine segment, making what is now described as the vaginal Cesarean section.

Accouchement force in placenta previa, he said, has been used probably ever since this complication was known, and it is still used, too often improperly, owing to the conditions that are frequently present in placenta previa.

Bag and Hand Dilatation.—This subject was discussed by Dr. Robert L. Dickinson, of Brooklyn, by invitation. He said that accouchement force is major surgery. These operations belong in the hospital operating room, as the grave conditions of eclampsia and placenta previa may be foretold. Barnes' bags are anatomic errors. The conical balloon of Champetier dried and broke apart on slight traction, while the undue elongation of the cone showed the presenting part up out of the brim and permitted the cord to prolapse. The simple, strong, short cone of Voorhees, inelastic, thin enough to slip in, when rolled, wherever the finger tip will pass, with no stop-cock to get out of order, is durable, efficient and inexpensive.

For rapid dilation, the tube is pulled upon steadily or with intermissions; but if the normal process is to be simulated or expedited, the douche-bag is raised and lowered, and contractions produced, or lessened, literally, turned on or off, as desired.

The disadvantages of dilation by these methods are the same that apply to all artificial methods of opening the cervix. Although the lips of the cervix are opened and separated thereby, thinning, retraction and effacement do not occur. At least, the normal disappearance of the cervix does not occur, unless the uterus is induced to take an active part. But the advantages of the balloon call for frequent use. The procedure more nearly resembles the normal process than any other method of artificial dilation. It inflicts less injury than any other. The outfit is light, inexpensive, and compact, and its use is within the range of the general practitioner. Its field is not small, for although its action is usually less rapid, like that of branched dilators or the hand, and though the most rigid conditions may not yield to it, yet it has no rival at all for induction of labor, for inertia in the first stage, and as a tampon dilator in placenta previa with a thick, unyielding os.

There is nothing so intelligent as the finger, nothing less dreaded, nothing so handy. It will always be the main resource, and this whether it is asked to initiate labor by stripping the membranes or to stretch fully the cervix. Put the rubber cover on it and it is sterile. Give the hand time, and few cases only can resist its action.

The disadvantages of manual dilation are: (1) Infection, overcome by the rubber glove. (2) Laceration, overcome by patient gentleness. (3) The swollen, contused and unthinned result, a drawback common to all artificial methods. (4) The difficulty in reaching or entering the internal os when the cervix stands far back in the pelvis, and is not to be coaxed within touch of the finger tip. This trouble is easily overcome by the single tenaculum gently drawing downward on the anterior lip. And, lastly, there are occasional rings so rigid that no finger can pass them. For them, the knife or metal dilator is demanded. These,

in hospital work, we fearlessly cut wider, then deliver, and repair.

In the choice of the method of extraction, the American will often prefer the forceps where the German would bring down the foot. Whenever speed is the main consideration, one is obliged to turn. Whenever, in placenta previa, the head cannot be made to blockade the cervix, one must turn. Version is our chief reliance; but its indiscriminate employment must be limited because of the danger of shock, sepsis, rupture. One may not inadvisedly add shock to shock, in blood loss, or eclampsia. For induction in the latter months, and for inertia during labor, where other causes are eliminated, such as exhaustion, overdistention and malposition of passage or passenger, the bag comes first, then the hand, and the forceps finishes their work. In placenta previa the balloon should be used for the narrow cervix that bleeds, when the head will not plug it; version for the bad cases, since the thigh is the surest tampon. For brisk hemorrhage of detachment of a normally located placenta, the greatest speed is attained by manual or metal dilation. For the rigid cervix of the early months, for the unyielding girdle of the elderly primipara, for the gristly hardness of eclampsia, the powerful Bossi instrument is a great boon, and none of its imitators approach it.

Abdominal and Vaginal Cesarean Section as a Means of Accomplishing Accouchement Force.—Dr. J. Clarence Webster presented a paper on this subject. He stated that abdominal and vaginal Cesarean section are rarely necessary as means of rapid delivery. The latter procedure has been employed by very few operators. It is mainly due to Duhrssen's advocacy, in 1896, that it has begun to attract notice. The technic of the operation was described in detail.

Dr. Webster next considered abdominal and vaginal Cesarean section in relation to the various conditions in which accouchement force is most commonly employed. In rare cases of eclampsia, it may be indicated, namely, in contractions of the birth canal by pathological changes in the soft or hard parts which make delivery through it impossible. When also an eclamptic dies, the fetus being alive in utero, it is the duty of a physician, who may be present at the time of death, to advise immediate post-mortem Cesarean section. Bauer has recently reported eight such cases, in which four infants were saved. Vaginal Cesarean section is to be recommended in cases of eclampsia in pregnancy or in early labor in which the cervix is rigid and difficult to dilate.

Within the last few years, abdominal Cesarean section has been performed in several cases of placenta previa. This procedure has been widely criticized. If women were always in hospitals, where the operation could be done promptly by an expert operator immediately after the diagnosis was made, the essayist thinks the results might be more satisfactory, both to mother and infant, than those obtained by all other methods of treating placenta previa, but under the conditions which exist in ordinary private practice, the results would undoubtedly be worse.

Although several obstetricians have suggested abdominal Cesarean section in certain cases of premature detachment of the normally situated placenta, it has been rarely employed. The operation, in the opinion of the essayist, should only be considered when it is impossible to carry out other procedures by the vaginal route. Vaginal Cesarean section is indicated in cases of accidental hemorrhage where the patient's condition is critical, and where the cervix cannot be rapidly dilated by the ordinary methods, providing a competent operator is at hand. In affections of the heart, lungs, kidneys, etc., where the mother is in danger, and rapid

delivery indicated, this operation may be undertaken. In these various conditions, vaginal section is indicated where the cervix does not admit of easy dilatation. The abdominal operation should not be employed, save where there is no possibility of satisfactorily performing vaginal section.

Cervical Incisions in Labor.—Dr. Rudolph W. Holmes discussed this subject. He said that the use of cervical incisions is by no means a new obstetric procedure, as for a century or more cutting operations upon unyielding cervixes have been fully recognized.

He discussed the anatomical considerations, indications, essential indications, atresia of pregnancy, rigidity without closure of os, ventrofixation, contributory indications, premature rupture of membranes, generally contracted pelvis, eclampsia, heart disease, contraindications, dangers, the operation and technic.

In closing, he expressed his strong condemnation of the too common practice of using forceps through the partially dilated os. He believes that forceps never were intended for dilators. If an instrumental delivery is indicated and full dilatation is not present, some method of dilating the os must be used first. A great advance in the progress of general obstetric practice will be realized when the profession learns that a partially dilated os is a positive contraindication to the use of forceps. Dr. Holmes concludes: (1) The contributions of Dührssen to the subject of cervical incisions are not sufficiently original to warrant a proprietary right in the nomenclature. Coutouly, Baudelocque, Bedford, Braun and Skutsch did much to develop our knowledge of the subject. (2) Effacement of the cervix is an indispensable prerequisite to the use of incisions. For this reason incisions are especially applicable to primiparae, and are often contraindicated in multiparae. (3) Incisions are indisputably of value, even necessary in essential indications. In contributory indications their use is a mooted question. The judgment of the operator must decide in individual cases. (4) Manual dilatation preliminary to incisions does not secure the best cervical condition for incisions. (5) Incisions always are potentially dangerous; dangers comprise infection, hemorrhage, and extensive lacerations beyond the vaginal vault. (6) Use of incisions demands an obstetrical armamentarium, assistants, and a definite experience in obstetrical procedures. (7) The details of the technic may be modified to suit the taste of the operator. (8) The minimum number of incisions to meet the exigencies of the case should be made. (9) Oblique incisions may be proven to be more advantageous as regards the after-effects than the usual quadrant cuts. (10) In the absence of hemorrhage, or accessory lacerations, it is a mooted question whether the incisions should be sewed up or not. (11) Immediate delivery should follow the incisions.

Bossi Dilator and Its Place in Accouchement Force.—This subject was introduced by Dr. Joseph B. De Lee, who said that the inventor of this instrument had used it since 1890, and had shown it at several medical congresses, but few obstetricians had used it until recently. The dilator has been used with success recently in Dresden, Prague, Berlin, Paris, and several other foreign cities. Its use in this country has not been published, although the author finds that it has been employed at Johns Hopkins and at the Sloane Maternity, New York. Dr. De Lee has used the Bossi dilator three times.

Dührssen has made an exhaustive study of most of the reported cases, and concludes that the Bossi dilator is a dangerous, inefficient, and useless instrument. The literature on the subject is rapidly increasing. The author's own opinion, based on three cases which he reported in detail, and a study of the many reported

cases, is as follows: (1) There is a small field of usefulness for the instrument in cases where rapid dilatation of the cervix is necessary after effacement. Before effacement, the colpeurynter should be used. It will be more successful in multiparae. (2) The instrument will be useful in dilating the cervix in those cases where manual dilatation would be successful. It possesses advantage over the hand in the aseptis, in that it is not so tiring, so that the operator may carry out the subsequent delivery comfortably. (3) The instrument is not safe, but requires careful and skilled watchfulness, and one must search for and be ready to repair more or less extensive lacerations. These are greater in primiparae. (4) It should never be used in placenta previa. (5) It does not replace the colpeurynter, the use of the hand, or cervix incisions in all cases.

BOOK REVIEWS.

OBSTETRICS. A Text-book for the Use of Students and Practitioners. By J. WHITRIDGE WILLIAMS, M.D., Professor of Obstetrics, Johns Hopkins University; Gynecologist to the Johns Hopkins Hospital; Gynecologist to the Union Protestant Infirmary, Baltimore, Md. D. Appleton & Co., New York and London.

Of late we have been inundated with text-books on the subject of obstetrics, but to our mind, no single writer has given us such a complete and original volume as is here presented. The anatomy, embryology, histology and pathology, to which the author has devoted more than one hundred and fifty pages, are more concisely and lucidly placed before the student than in any other work in the English language of a like character.

In Chapter X, which has to do with the physiology of labor, there are given many and interesting causes for the production of the beginning of labor that has been hitherto passed as unknown to the usual writer.

The author's classification of abnormally developed pelvis is the most minute and yet extensive of any of the modern investigators, and we doubt the advisability of trying to make the close differences and distinction that Dr. Williams insists on. It is certain that the subject is in no way simplified by his classification.

The subject of puerperal sepsis is all that would be expected from one who has done such excellent research along these lines. A most complete list of the bacteria and parasites which play such an important rôle in this condition is given with an ingenious method of taking cultures from the uterus in a truly aseptic manner. "Palpation of the cavity of the uterus," says the author, "enables us in many cases to predict the result of bacteriological examination, and, what is of more practical value, gives important information as to the line of treatment to be pursued. Thus in putrid endometritis and infections due to the colon bacillus, we usually find the surface of the uterine cavity rough and covered with shreds of broken down tissue; while in the septic forms its interior is often perfectly smooth." Such a degree of tactus eruditus as this would presuppose does not become the property of many most intelligent and skilful clinicians. We do not doubt that Dr. Williams may find this method of examination helpful, but it is to be feared that there are not many others who will be able to reap the same amount of information from the employment of the procedure, as an aid in the differential diagnosis of the two varieties of infection of the uterine cavity.

Symphysiotomy is given but little enthusiasm and is to the author but a competitor of version, high forceps

and craniotomy, or with Cesarian section, provided the conjugata vera exceeds 6.5 cm. In closing the chapter devoted to this subject the author very succinctly expresses his opinion in the following words: "Personally, at the present time, I do not expect to perform symphyseotomy under any circumstances, and consider that the present enthusiasm for it will eventually disappear."

Too much of praise cannot be bestowed upon the author and publisher for the delightful manner in which the book is illustrated. Every effort seems to have been employed to make the pictures true to life. Accompanying each description of the method of palpating the abdomen of the pregnant woman as a means of diagnosing its position, by Leopold's maneuvers, there is a most excellent semidiagrammatic picture with the points to be made out from each maneuver. In place of the usual and time-honored schematic cut representing the process of extension of the fetal head in its descent through the parturient canal and in the dilatation of the vulva, there is a series of photographs taken from life and showing the true state of the parts at this time in a much clearer manner.

We feel that Dr. Williams is to be congratulated for having given us one of the best text-books that has been published in the English tongue pertaining to the subject of obstetrics. There are but very few its equal and certainly none better, both in the character and originality in method of presentation of its subject-matter.

SURGICAL ANATOMY AND OPERATIVE SURGERY. For Students and Practitioners. By JOHN J. McGRATH, M.D., Professor of Surgical Anatomy and Operative Surgery at the New York Post-Graduate Medical School, Visiting Surgeon to the Harlem Hospital, and Assistant Visiting Surgeon to the Columbus Hospital, New York. F. A. Davis Company, Philadelphia.

THERE are so many works upon surgery being placed before the medical profession at the present time, and aiming to cover the subject in one small volume, that there seems little need of more books of this sort, unless they possess some special feature of usefulness. In order to cover so great a subject in so small a space it is, of course, necessary that only the most important facts be recorded and the book becomes a special text-book rather than one of value as reference. In this volume there has been an endeavor to combine the subjects of surgical anatomy and operative surgery in a practical manner with the exclusion of all unimportant anatomical points and a description of only the most frequently employed operations. As it has been intended evidently for use more particularly by the students at the Post-Graduate Medical School under instruction from the author, it will undoubtedly prove to be of considerable service to them in refreshing their memories upon important anatomical and surgical points. It can hardly be said, however, that it will prove of any great benefit to the general practitioner.

"WILD OATS:" A Sermon in Rhyme. By MAURICE C. HIME, M.A., LL.D., Sometime Head-Master of Foyle College, Derry; Author of "Home Education," "A Schoolmaster's Retrospect," "Unbelief," etc. P. Blakiston's Son & Co., Philadelphia.

Dr. HIME is the author of the pamphlet on the very delicate subject,—"Schoolboys' Special Immorality," which has attracted considerable attention and has been highly praised by most of the English medical journals. The present pamphlet, "Wild Oats," is a rather prosy sermon in rhyme. The author takes away some of the sting of Horace's critique by frankly quoting at the be-

ginning "In spite of the rhythm, 'tis prose after all," but we fear that the sermon is least likely to be read by those who might profit most by it.

ANATOMY. A Manual for Students and Practitioners. By WILLIAM H. ROCKWELL, Jr., M.D., formerly Assistant Demonstrator of Anatomy in the College of Physicians and Surgeons, Columbia University, New York. Series edited by BERN B. GALLAUDET, M.D., Demonstrator of Anatomy and Instructor in Surgery, College of Physicians and Surgeons, Columbia University, New York; Visiting Surgeon, Bellevue Hospital, New York. Lea Brothers & Co., Philadelphia and New York.

SINCE medical colleges are each year becoming more exacting from students, on account of the rapidly increasing medical knowledge which it is considered essential for them to be familiar with, it is advisable, of course, that these new demands should be met, so far as possible, by higher grades of scholarship and capability on the part of the student. On the other hand, time is such an important element that improvements in the methods of study should be introduced whenever possible.

This manual of anatomy aims to furnish the student or practitioner with all the essential points of the larger text-books and seems to be especially valuable on account of its lack of pretence of originality and its thorough conformity in arrangement and even wording to Gray's Anatomy which is so generally used at the present time. Thus the confusion of ideas which results from the use of one text-book and a manual for review which is founded upon another is entirely avoided. Many of the valuable illustrations have been omitted but it is not intended that the manual should entirely displace the complete text-book. It should serve rather as a ready means of reference and review, and it is certainly well adapted for that purpose.

INTERNATIONAL CLINICS. A Quarterly of Illustrated Clinical Lectures and Especially prepared Articles on Treatment, Medicine, Surgery, etc. By Leading Members of the Medical Profession Throughout the World. Edited by A. O. J. KELLY, A.M., M.D. Volume I, Thirteenth Series. J. B. Lippincott Company, Philadelphia.

THE present volume of the International Clinics, the beginning of a new series, is the first to appear under the direction of the new editor, Dr. A. O. J. Kelly, of Philadelphia. It contains even more excellent clinical material than usual. The opening article is from the pen of Prof. Osler, who gives the interesting details of all the cases of aneurism of the descending aorta that have been under his care in his years of service at Johns Hopkins Hospital. Most of the important diagnostic, prognostic and therapeutic features of aneurism of the aorta can be very practically obtained from these pages. It is well known how thorough Prof. Osler is on a subject like this.

Other interesting clinical features are by Dr. Reynold Webb Wilcox, of New York, on the treatment of anemia and of cardiac and vascular fibrosis, the treatment of chronic urethritis by Prof. Finger, of Vienna, and a very practical detailed account of the application of Nauheim methods with American adaptations to the treatment of chronic heart disease by Dr. Satterthwaite, of New York.

American Surgery is well represented by Professors Keen and Senn. If this number is to be taken as a foretaste of the new editorial management, much may be expected from the new series of the Clinics.